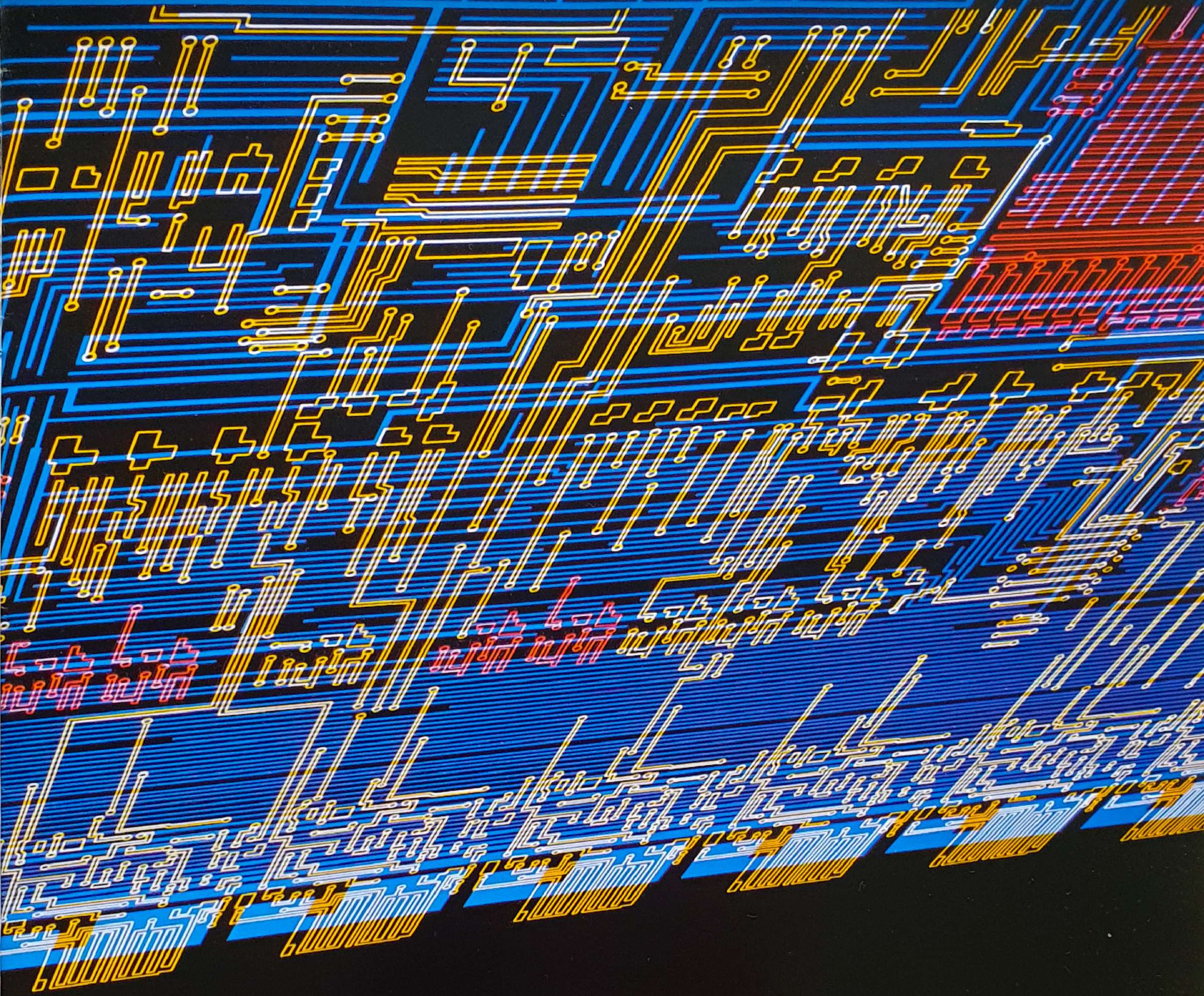
ALL NEW

# Nikon FA

Nikon
FA
NIKKOR 50mm 1:1.4
Nikon
6104814



At last, a camera that can handle a great many picture taking situations even under unfavorable lighting conditions.

Nikon presents the new Nikon FA with "multi-technomode" automatic exposure capability.

**Dual Program** auto-exposure with cybernetic override and Normal as well as High-Speed Program.

**Shutter-Priority** auto-exposure with cybernetic override and top 1/4000 sec. shutter speed.

**Aperture-Priority**, with stopped-down auto-exposure.

And **Manual** mode.

Plus **TECHNOFLASH** with direct TTL flash control at up to 1/250 sec.

**TECHNODRIVE** with an all-new motor drive.

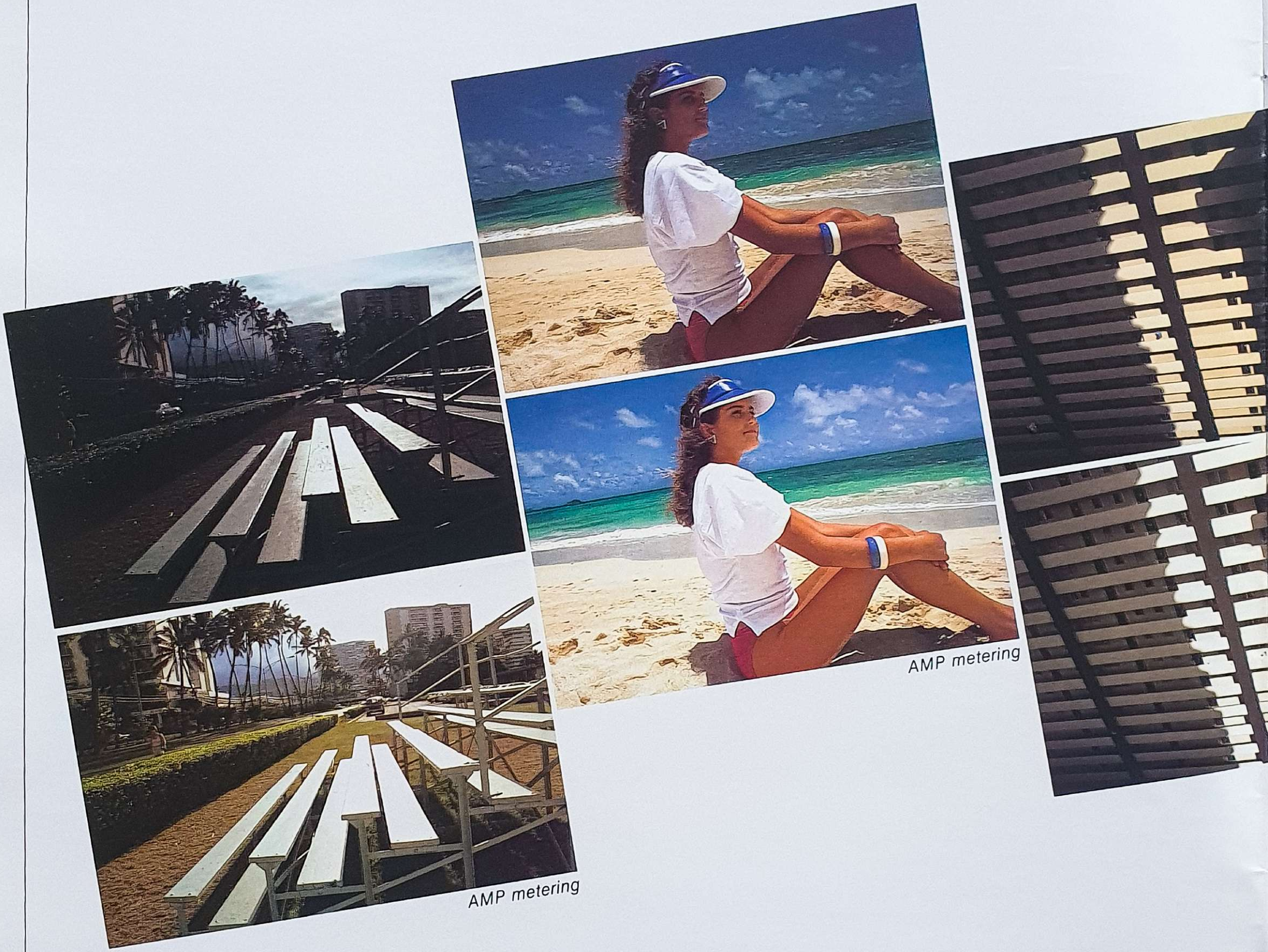
**And the FA offers what no other SLR can: Nikon's all-new Automatic Multi-Pattern Metering (AMP) system which executes optimum exposure measurements automatically, even in difficult lighting situations.**

A built-in microcomputer enables the FA to put all these functions at your command, automatically, instantly, making it a camera that's amazingly easy to use.

The Nikon FA. We won't call it revolutionary, you will.

# Nikon FA
# THE TECHNOCAMERA

# AUTOMATIC MULTI-PATTERN METERING (AMP)



AMP metering

AMP metering

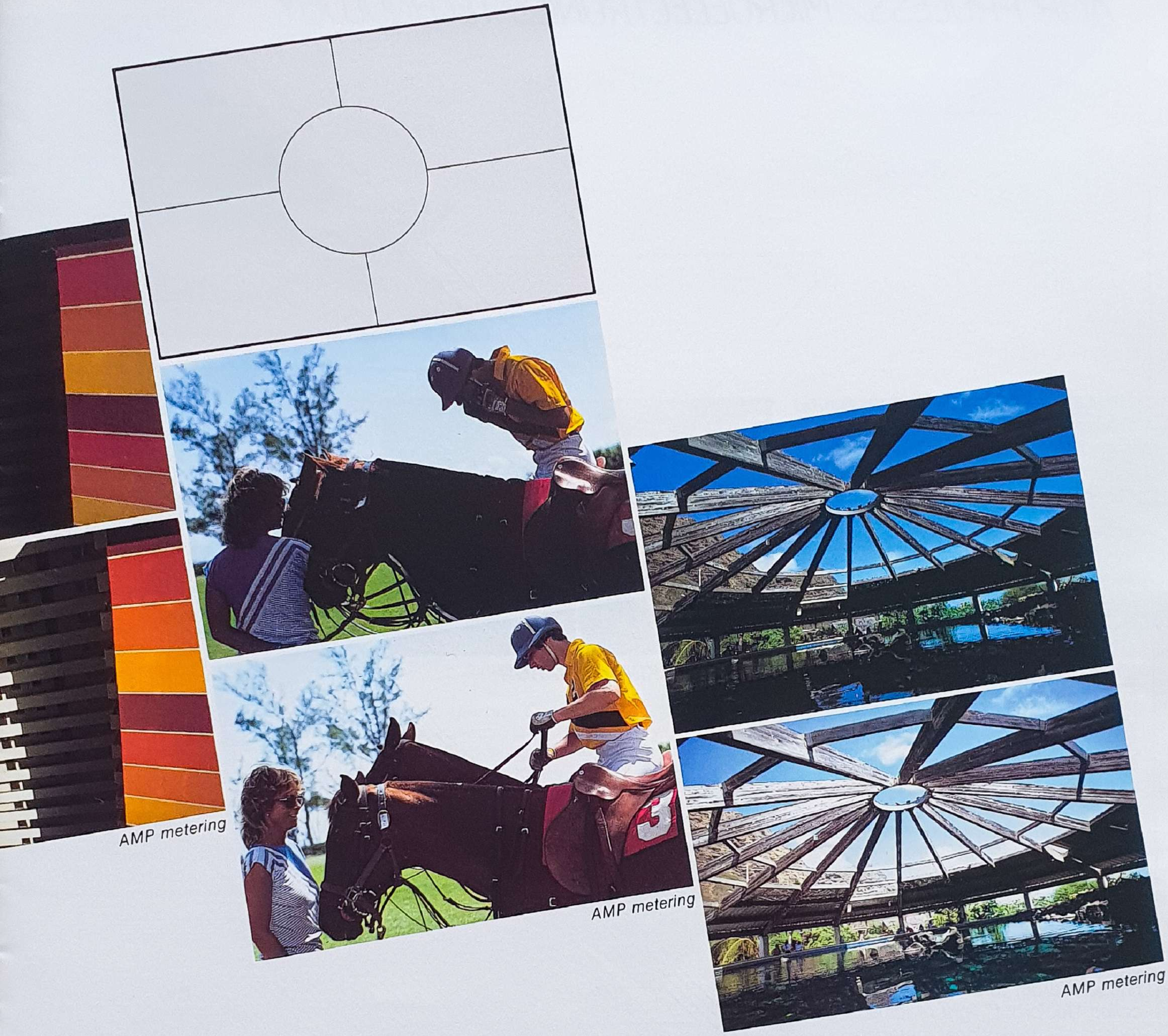
*The most dramatic innovation in exposure measurement since the advent of automatic exposure control, Nikon's unique Automatic Multi-Pattern Metering (AMP) system effectively tackles what has so far been the biggest drawback of auto-exposure cameras: foolproof light measurement. It could well be the most ingenious 35mm SLR tool ever devised.*

*With the conventional centerweighted, averaging, zone or spot exposure measurement systems currently available in auto-exposure cameras, you have to make exposure compensations manually for back, harsh or otherwise difficult lighting in a great many picture-taking situations, totally relying on past experience or trial-and-error skill.*

*AMP relegates these problems to the past, assuring you of optimum exposure measurement over a wide range of unfavorable lighting situations. It divides the scene inside the frame into five segments, then individually reads each segment's brightness. A microcomputer then processes input data and executes the commands necessary for* ***optimum*** *exposure—not so-called "foolproof" or "correct" exposure.*

**AMP vs centerweighted metering**

*Centerweighted metering concentrates the meter's sensitivity on the center of the picture frame where the main subject is likely to be located in most picture-taking situations. And that is both its strength and weakness. For instance, if any element in the picture other than the main subject is strongly lit, or if this element reflects a very bright light, an apparently "correctly" exposed picture (but actually underexposed main subject) will result unless you compensate for the exposure. With AMP, that's not a problem. The picture is optimally exposed*



AMP metering

AMP metering

AMP metering

without your having to make manual exposure adjustments of any kind.

**AMP vs averaging-type metering**

In averaging-type exposure metering systems, the meter averages the value of the different degrees of brightness of the scene. This system's demerit is that strong light within the picture frame can fool the meter. For example, if your main subject is light in color and positioned against a large, dark background, the meter blindly assigns the background an unduly large value. The averaged measurement then results in an overexposed picture of the main subject. With AMP, a microcomputer individually processes the brightness level in each of the five AMP segments, assuring optimum measurement.

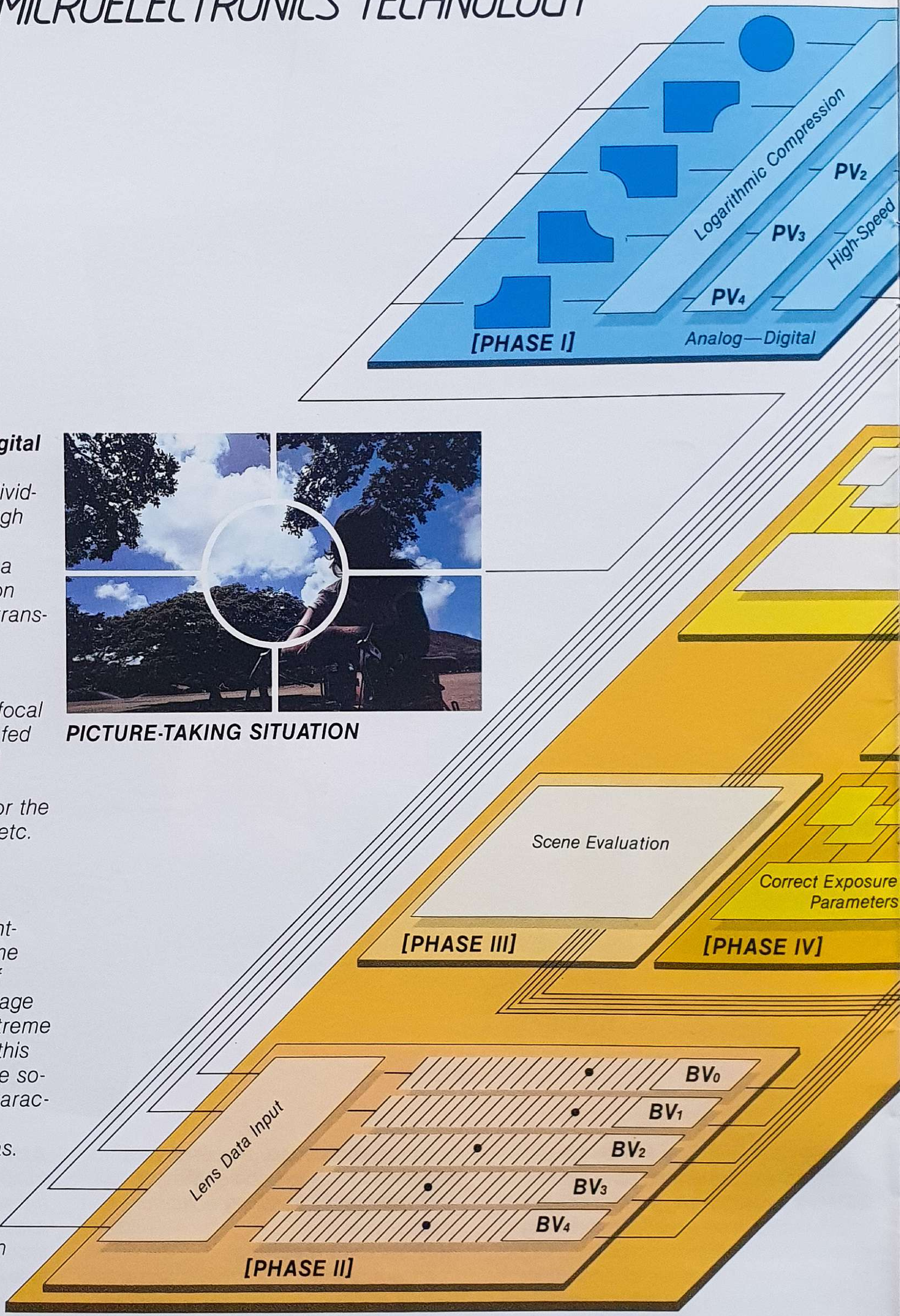
**AMP vs zone metering**

In zone metering, the meter's sensitivity is concentrated on a designated zone inside the image frame which senses the light. Although it is somewhat useful for skilled and seasoned photographers, the zone meter can fool exposure measurement and requires time-consuming exposure adjustment if the main subject is positioned off-center.

**AMP vs spot metering**

In spot metering, the exposure meter's sensitivity is concentrated on a tiny spot of the frame, occupying sometimes less than 3% of the whole picture area. Thus, if the photographer chooses the wrong spot, the result can be worse than with standard center-weighted metering. Worst of all, picking the right spot requires a lot of experience as well as time and may mean the loss of great pictures under quickly changing lighting conditions.

# AMP PROCESS/MICROELECTRONICS TECHNOLOGY



PICTURE-TAKING SITUATION

***[PHASE I] Light Sensing and Digital Conversion:*** *Five sensors corresponding to the five segments individually sense the light coming through the lens. These analog values are logarithmically compressed; then a High-Speed Sequential Comparison A/D (analog-to-digital) converter transforms them into digital values.*

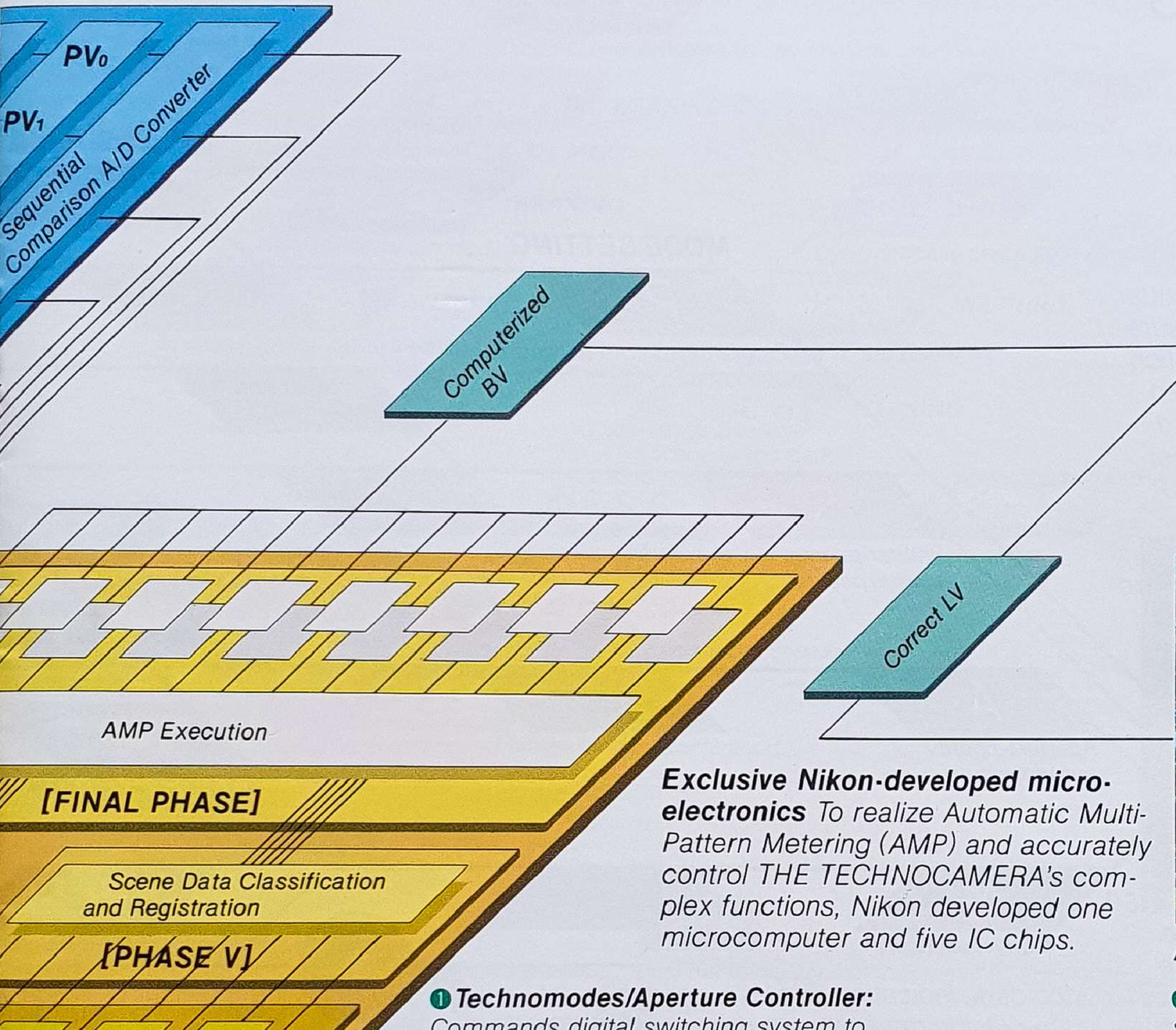
***[PHASE II] Lens Data Input:*** *Lens data including speed, type, number of stopped-down f-stops, focal length and digital light values are fed into this phase to accurately read brightness values over the entire frame area while compensating for the effects of vignetting, light fall-off, etc. of the lens in use.*

***[PHASE III] Scene Evaluation:*** *A great number of important data including degree of contrast, brightness composition patterns, extreme brightness position, percentage of bright areas, position and percentage of dark areas, light intensity of extreme brightness, etc., are evaluated in this phase in order to avoid making the so-called "foolproof" light reading characteristic of conventional metering systems in auto-exposure cameras.*

***[PHASE IV] Correct Exposure Parameters Analysis:*** *Parameters required to render optimally exposed pictures even in unfavorable lighting situations are analyzed and selected.*

***[PHASE V] Scene Data Classification and Registration:*** *Using the parameters selected in Phase IV, this phase classifies the picture-taking scene into a number of computer-simulated scene patterns (drawn from a visual assessment of tens of thousands of pictures, computer analysis of the relationship between brightness patterns, optimum contrast, etc., and human evaluation); these are then registered.*

***[FINAL PHASE] AMP Execution:*** *Scene data evaluated at Phase III is fed into this phase and compared with classified and registered Phase V scene data. The correct brightness value is then computerized.*


PV₀
PV₁
Sequential Comparison A/D Converter
ASA/ISO film speed in use
Computerized BV
Correct LV
AMP Execution
[FINAL PHASE]
Scene Data Classification and Registration
[PHASE V]
Analysis

**Exclusive Nikon-developed microelectronics** *To realize Automatic Multi-Pattern Metering (AMP) and accurately control THE TECHNOCAMERA's complex functions, Nikon developed one microcomputer and five IC chips.*

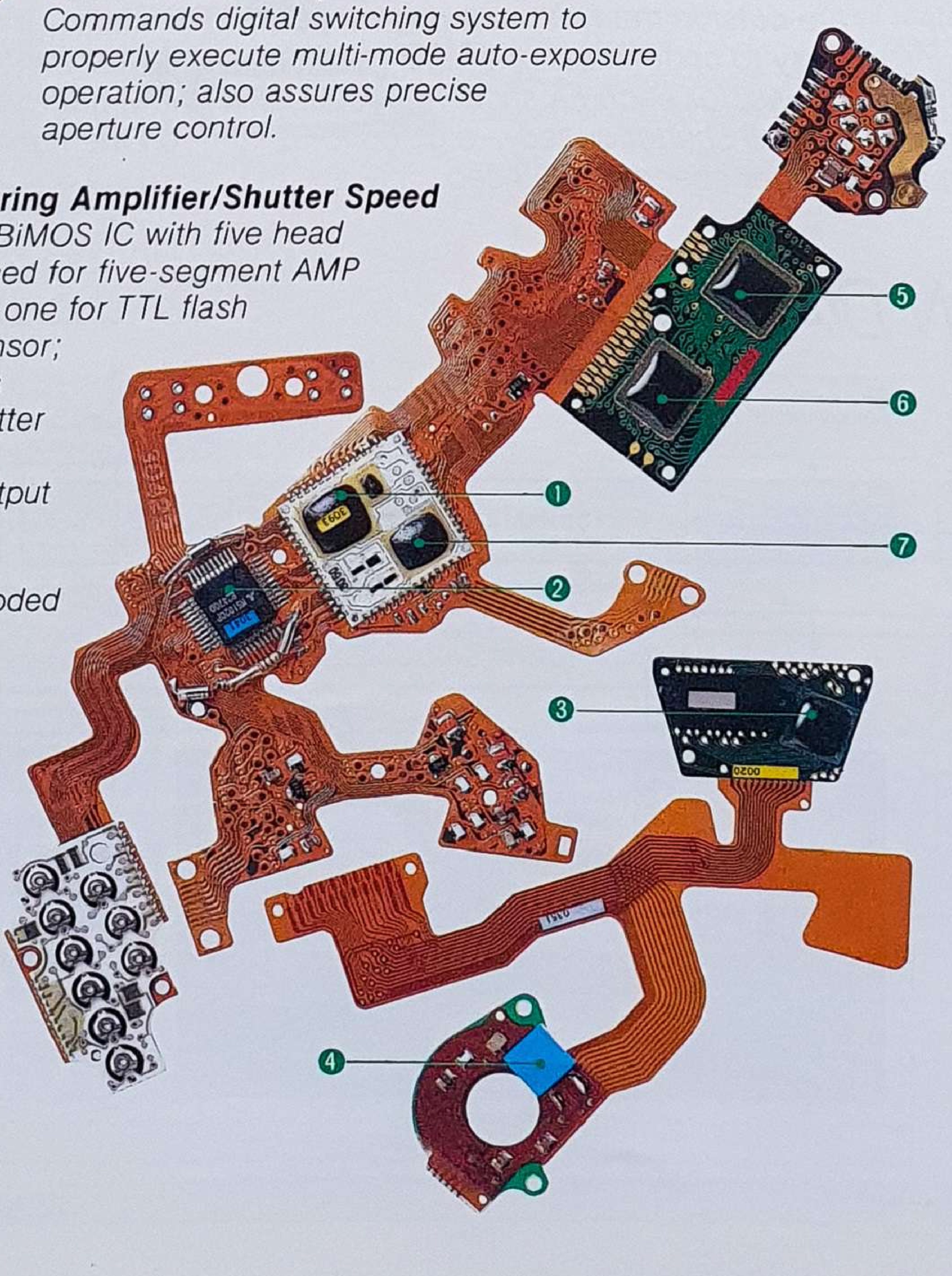
**AMP-PROCESSED PICTURE**

**➊ Technomodes/Aperture Controller:** *Commands digital switching system to properly execute multi-mode auto-exposure operation; also assures precise aperture control.*

**➋ TTL Metering Amplifier/Shutter Speed Controller:** *BiMOS IC with five head amplifiers used for five-segment AMP sensors and one for TTL flash metering sensor; also controls stepless shutter speeds and TTL flash output control.*

**➌ Decoder Driver:** *Recalls encoded display data and sends it to the digital LCD readout in clear, digital form.*

**➍ Ceramic Oscillator:** *This 524.288 kHz oscillator has the same capacity as those used in personal computers and other high-technology equipment.*



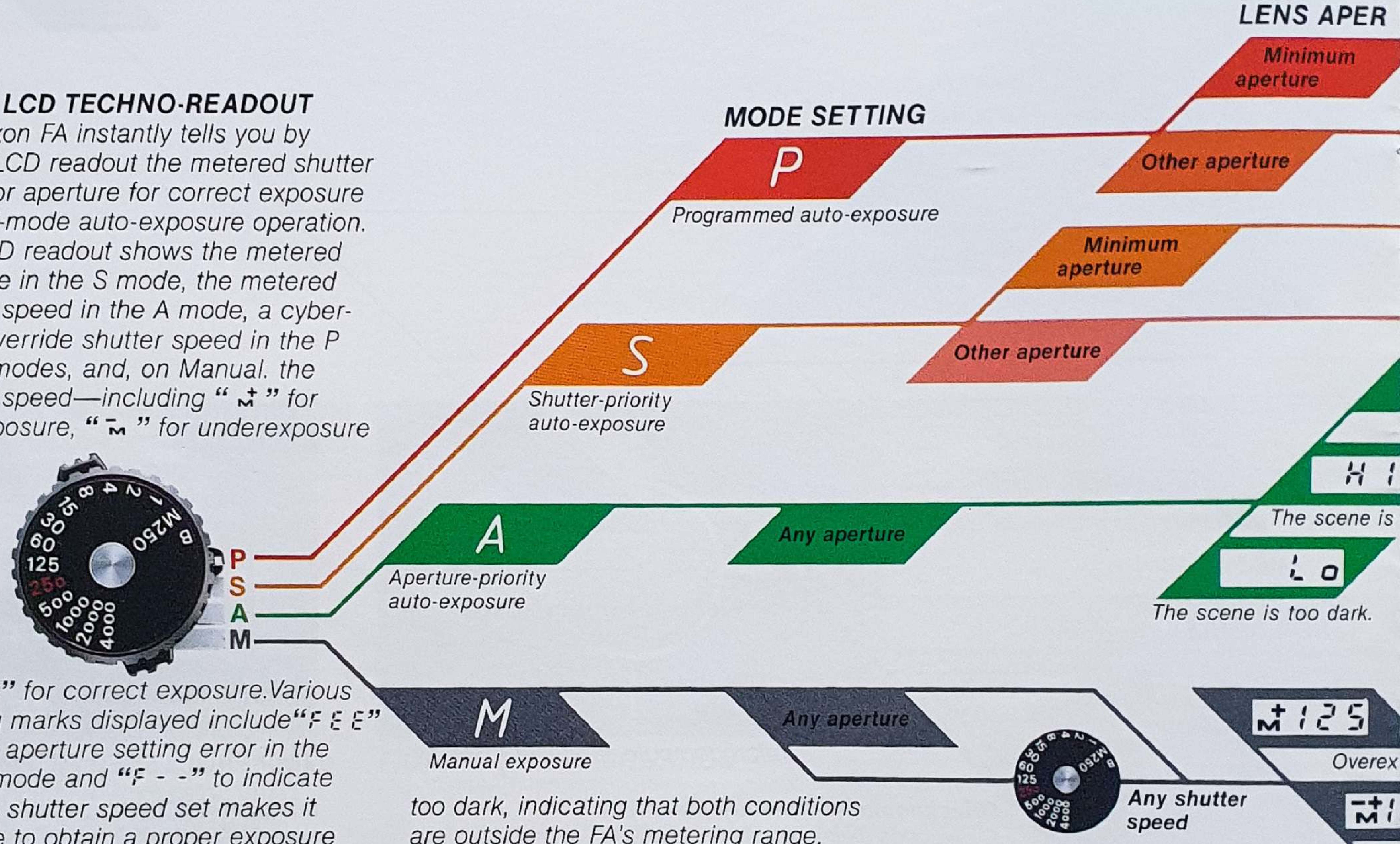
**➎ Digital IC:** *Digitally controls 13 shutter speeds from 1/4000 sec. to 1 sec. in the Manual mode, complex and exacting operation timing for flawless execution in all modes, TTL flash sync speed, 16-sec. meter-ON timer, as well as functions as a multiplexer to input lens data.*

**➏ Microcomputer:** *The FA's "technobrain" governs all computations for auto-exposure modes and flash sync speed; it also governs computations for metering and digital displays as well as controls the five IC chips with a 524.288 kHz high-speed computation process.*

**➐ D/A Converter:** *Microcomputer controls 6-bit D/A converter to realize high-speed analog-to-digital conversion of the five segments' brightness values by high-speed sequential comparison method; D/A converter controlled by the microcomputer.*

# FA MODE DISPLAYS

**Digital LCD TECHNO-READOUT**
*The Nikon FA instantly tells you by digital LCD readout the metered shutter speed or aperture for correct exposure in multi-mode auto-exposure operation. The LCD readout shows the metered aperture in the S mode, the metered shutter speed in the A mode, a cybernetic override shutter speed in the P and S modes, and, on Manual, the shutter speed—including "+M" for overexposure, "–M" for underexposure and "–+M" for correct exposure. Various warning marks displayed include "FEE" for lens aperture setting error in the P or S mode and "F - -" to indicate that the shutter speed set makes it possible to obtain a proper exposure without cybernetic override in the S mode when the lens in use is a modified AI-type Nikkor*. There's also "H I" when lighting is too bright and "L o" when it's too dark, indicating that both conditions are outside the FA's metering range. Easy to understand, the LCD readout shows, for each FA shooting mode, only the full shutter speed—e.g., 60 for a shutter speed of 1/58 sec.*



*At top center is displayed the aperture f-number you set on A or M. Displayed on the right is the shutter speed you set.*

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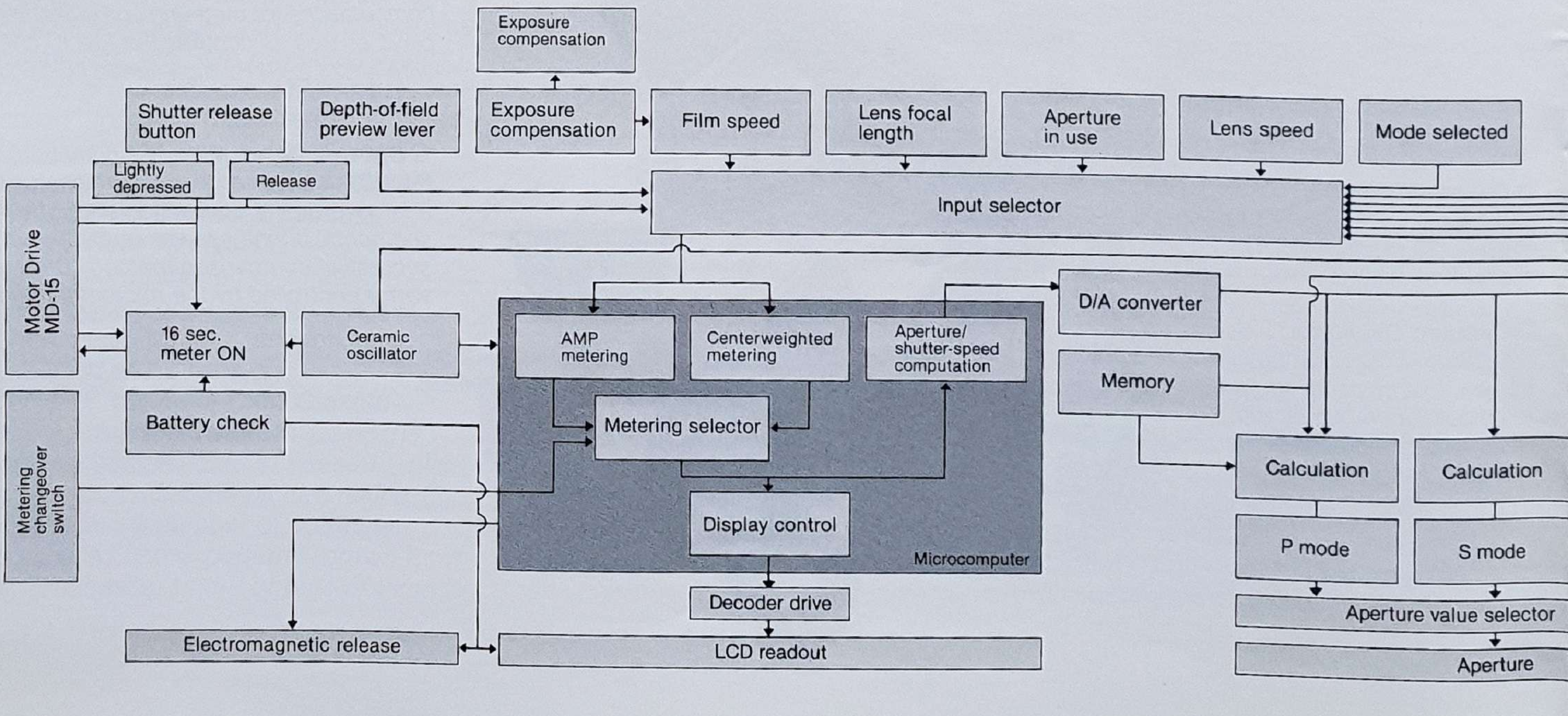
* See "AI-S type lenses," page 24.

# CAMERA OPERATION DIAGRAM



## LCD READOUT

**TURE SETTING**

125
*Shutter speed selected by the camera*

HI **WARNING**
*The scene is too bright.*

Lo **WARNING**
*The scene is too dark.*

FEE **WARNING**
*Aperture is not set at minimum.*

F5.6
*Aperture selected by the camera*

F - -
*(With modified AI-type lens)*

250
*Cybernetically overridden shutter speed*

HI **WARNING**
*The scene is too bright.*

Lo **WARNING**
*The scene is too dark.*

125
*Shutter speed selected by the camera*

**WARNING**
*too bright.*

**WARNING**

F5.6
*Aperture selected by the camera*

F - -
*(With modified AI-type lens)*

4000
*Cybernetically overridden shutter speed*

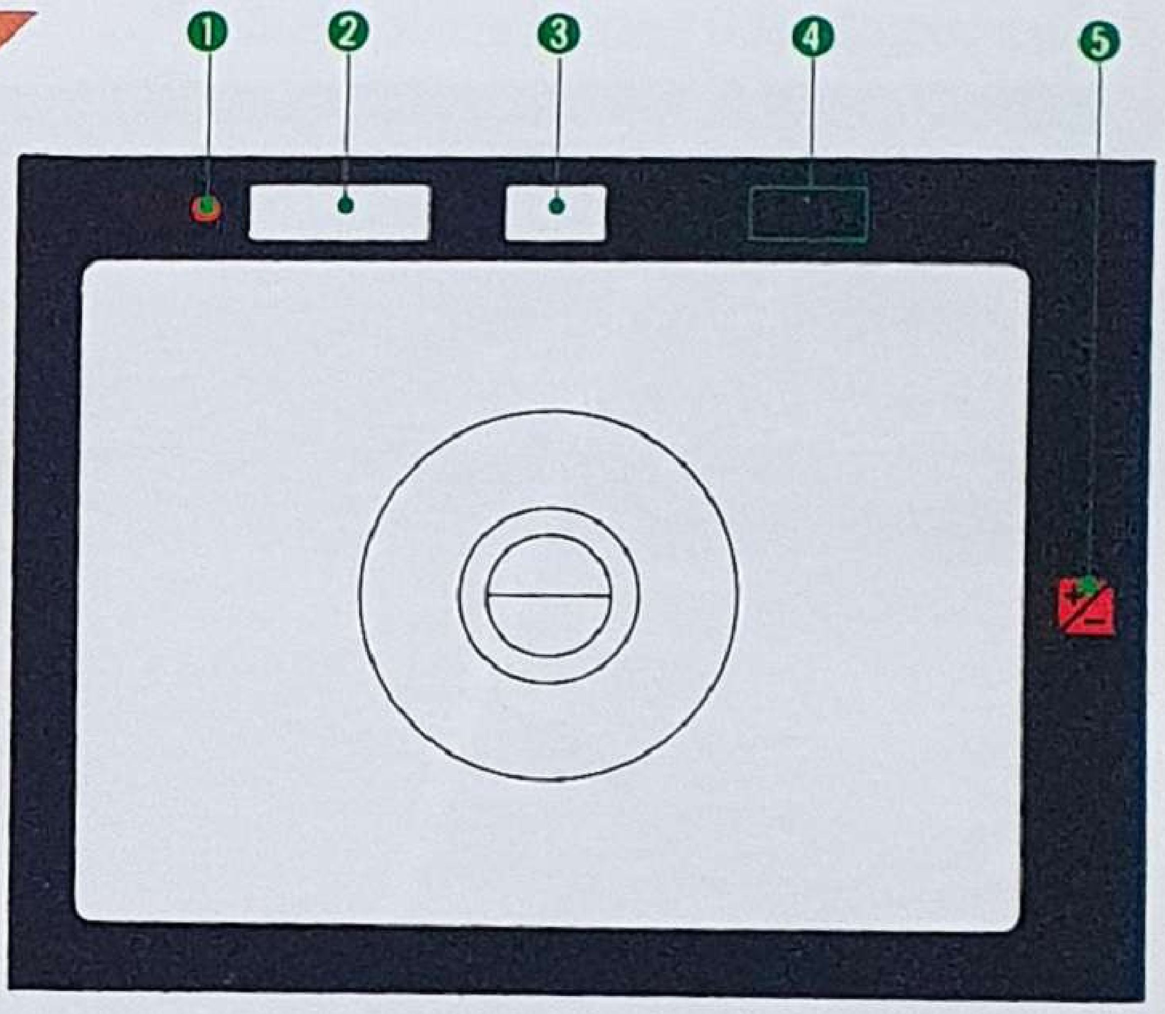
FEE **WARNING**
*The scene is too bright for the aperture set.*

Lo **WARNING**
*The scene is too dark.*

*posure*

25
*Correct exposure*

M 125
*Underexposure*

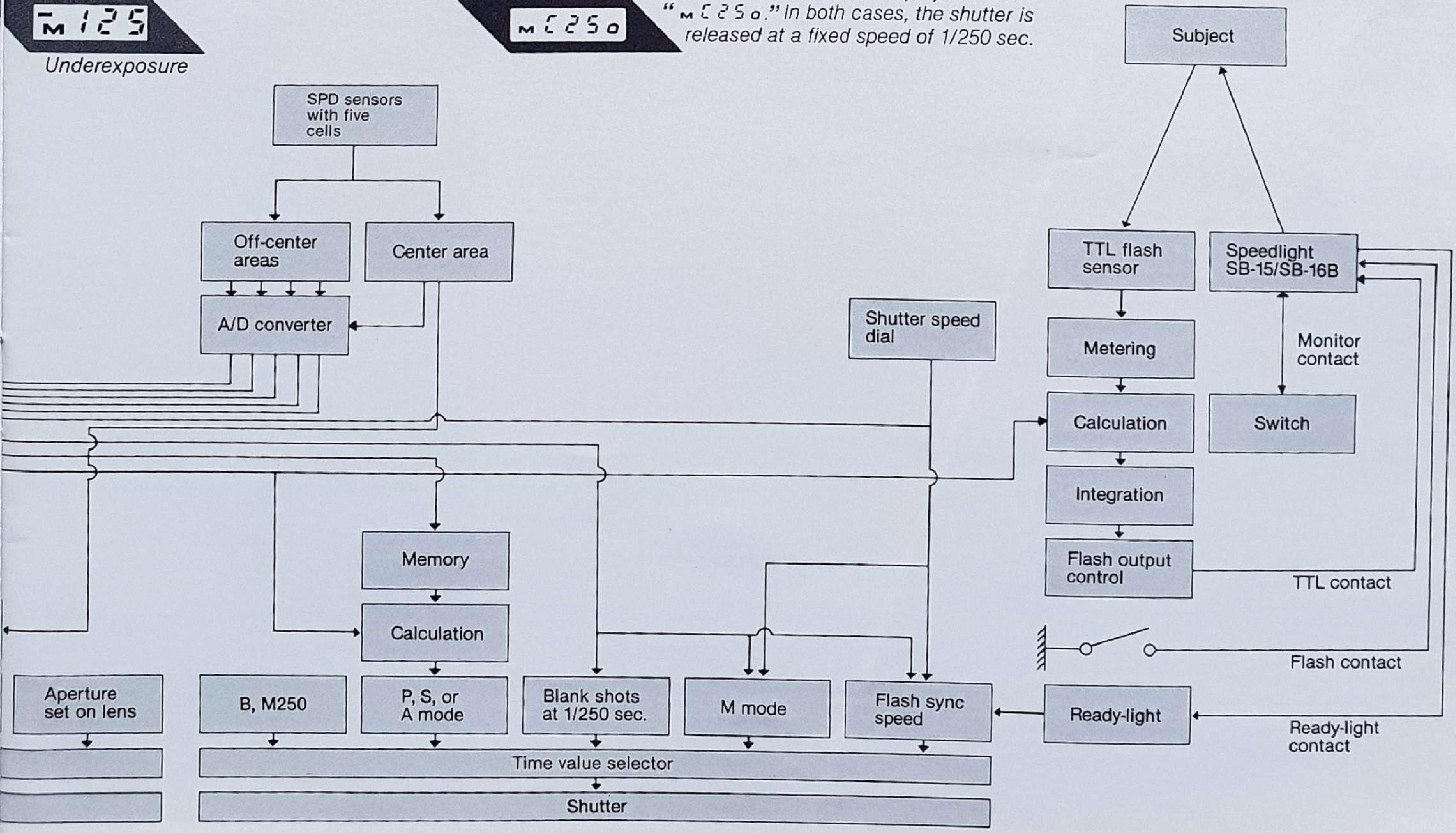


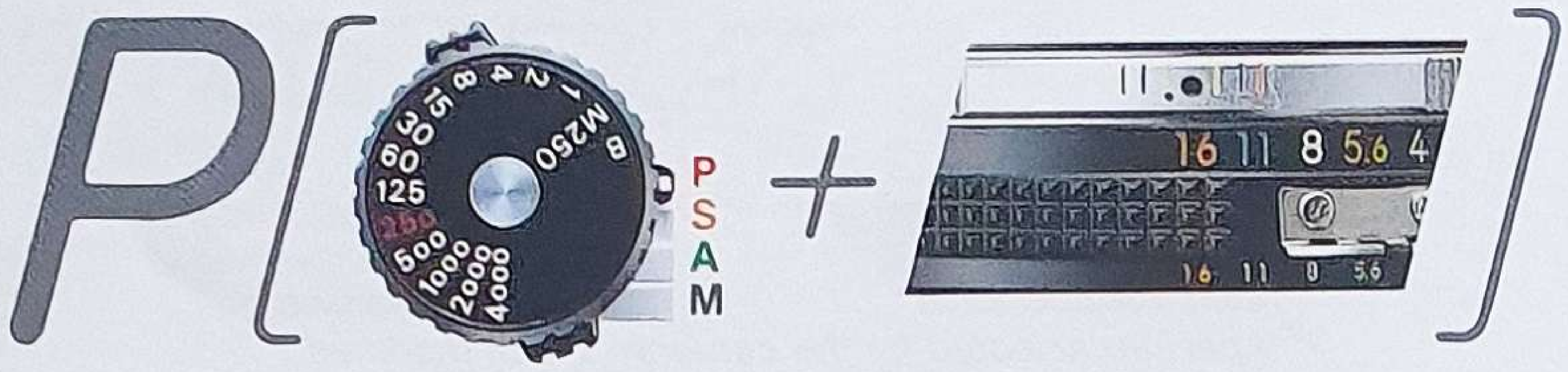
- ❶ *Ready-light*
- ❷ *LCD panel*
- ❸ *ADR f-number you set*
- ❹ *Shutter speed you set*
- ❺ *Exposure compensation mark*

C250

M C250

*Until the frame counter indicates "1", the digital LCD readout will show "C250" on P, S and A auto-exposure modes regardless of the actual shutter speed set. On Manual, the display will read "M C250." In both cases, the shutter is released at a fixed speed of 1/250 sec.*





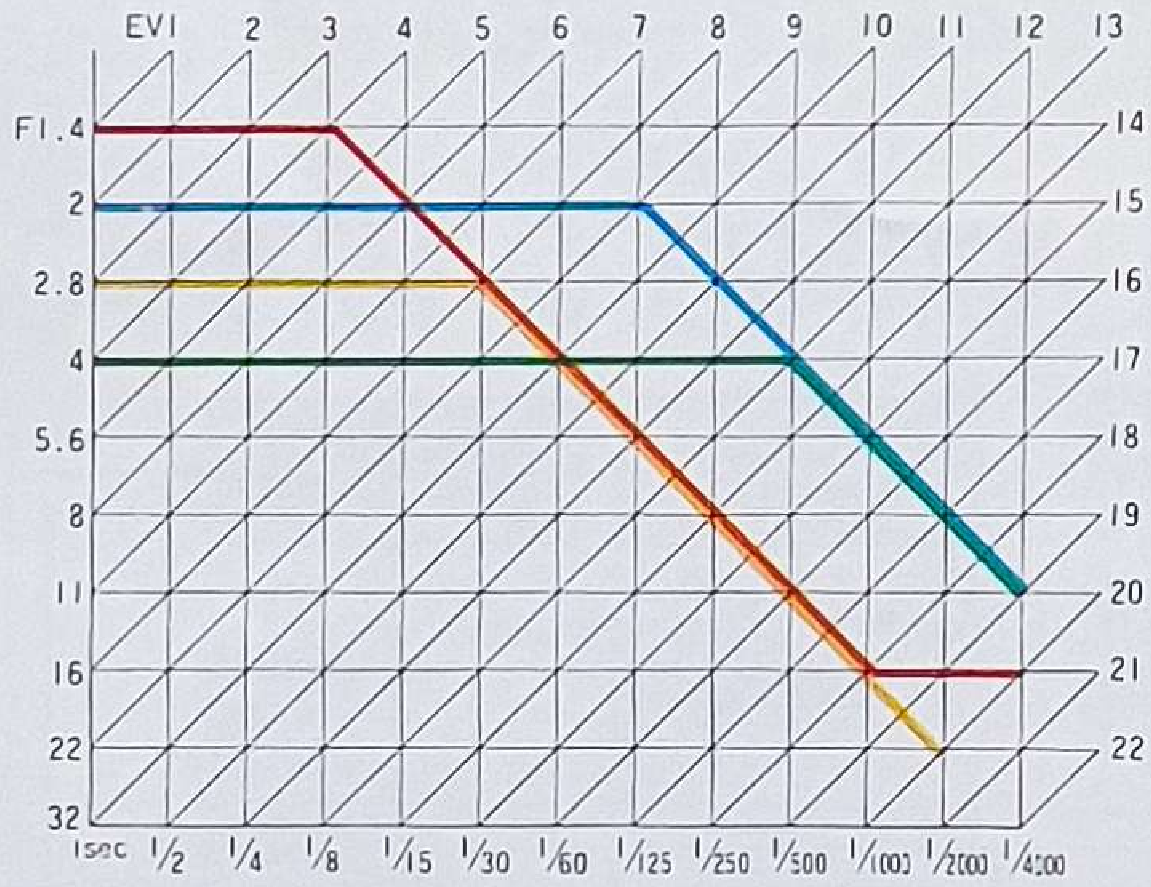
## Dual Program with Cybernetic Override

*The Program auto-exposure mode works best during those decisive instants when there's no time to set or adjust aperture and/or shutter speed because the action is too fast or the lighting is constantly changing. On P, THE TECHNOCAMERA automatically selects the optimum combination of shutter speed and lens aperture settings for correct exposure.*

*Both beginning and seasoned photographers will find it easy to use the FA in the Program mode right away. Simply set the camera to P, stop the lens down to its minimum aperture (i.e., the largest f-number engraved on the lens barrel), and shoot. That's all. The FA's digital LCD readout tells you the selected shutter speed. And with Nikon Automatic Multi-Pattern Metering, you're sure to come out with winners.*

***Dual Program***

*Depending on the lens, on P the FA makes available a Normal Program or a High-Speed Program. In the Normal Program mode, the FA automatically selects the prearranged matching shutter speed and lens aperture. Its microcomputer activates the High-Speed Program automatically when Nikkor or Nikon Series E lenses of 135mm* or longer are used. In other words, the FA selects a faster shutter speed than it would with the Normal Program. This has the unique and welcome advantage of minimizing image blur due to camera shake when long telephoto lenses are used, making it a boon for sports and fast-breaking action photography.*

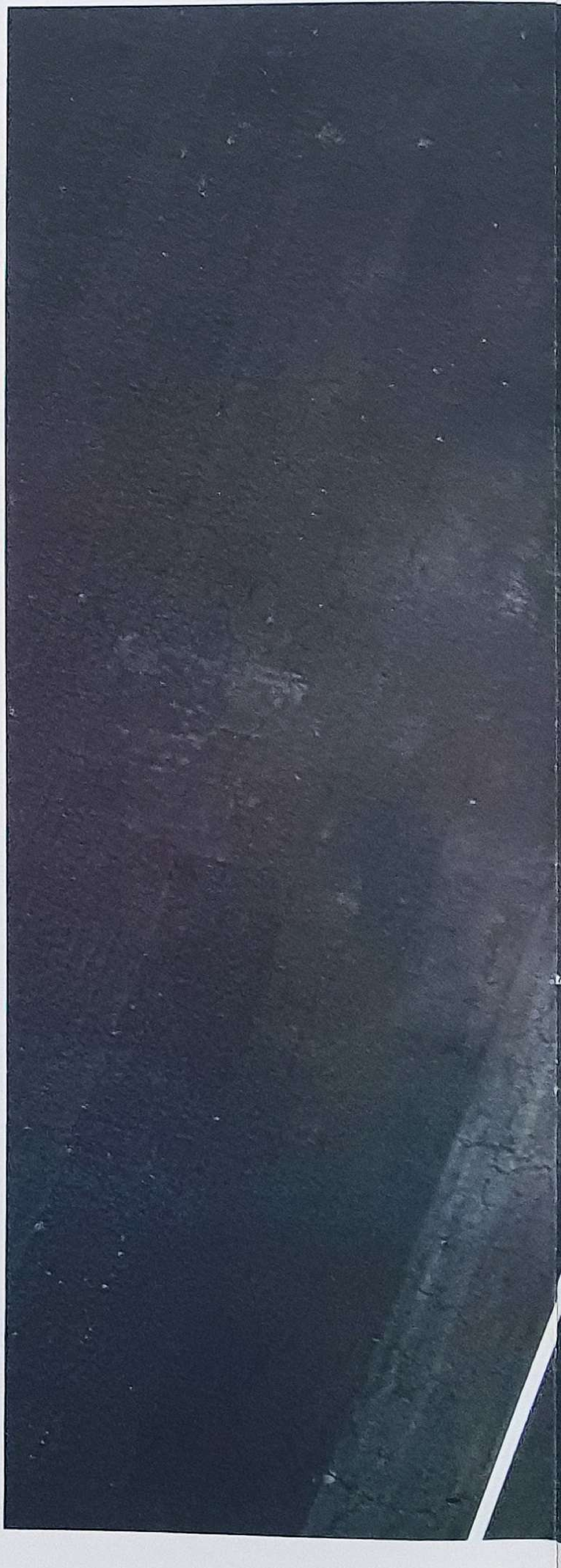


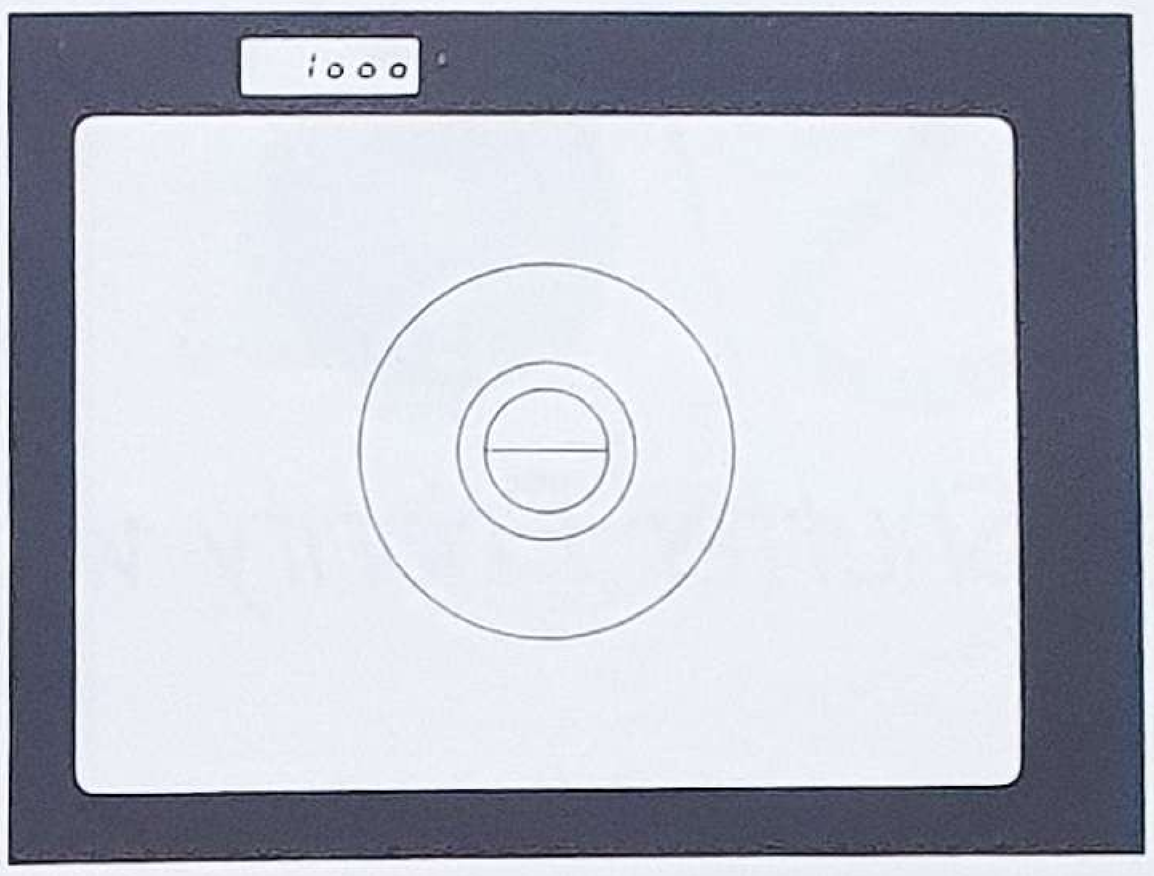
*Shown are the optimum combinations of exposure value (EV), aperture f-number and shutter speed in the Normal Program as well as High-Speed Program auto-exposure mode.*

** See "AI-S type lenses," page 24.*

***Cybernetic override***

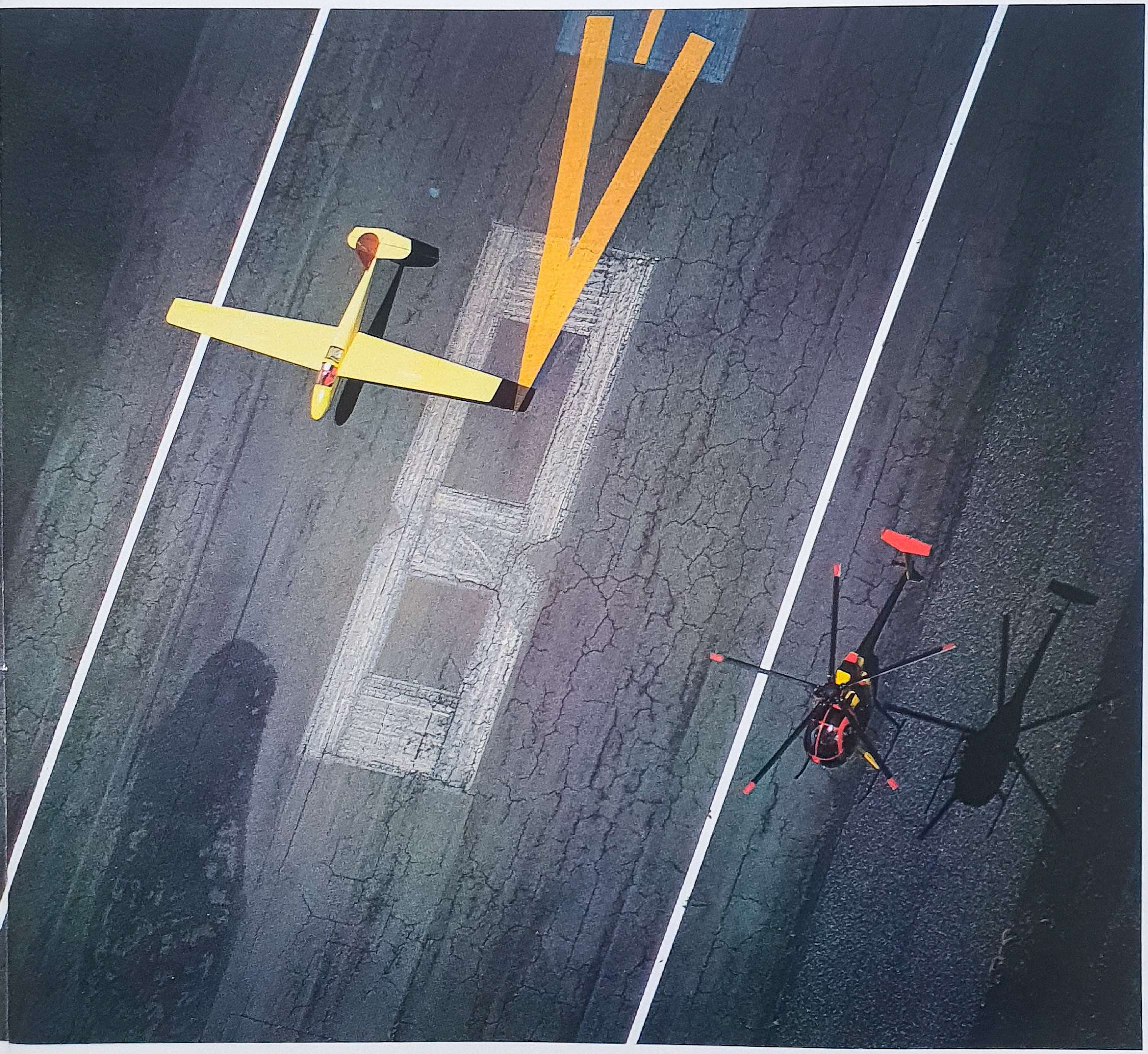
*What happens if you inadvertently or intentionally set the lens to an aperture other than the minimum aperture position? Don't worry about the picture coming out overexposed. Cybernetic override automatically selects the proper shutter speed for correct exposure. To remind you that the lens is not properly set at the minimum aperture position, the digital LCD display reads "FEE."*

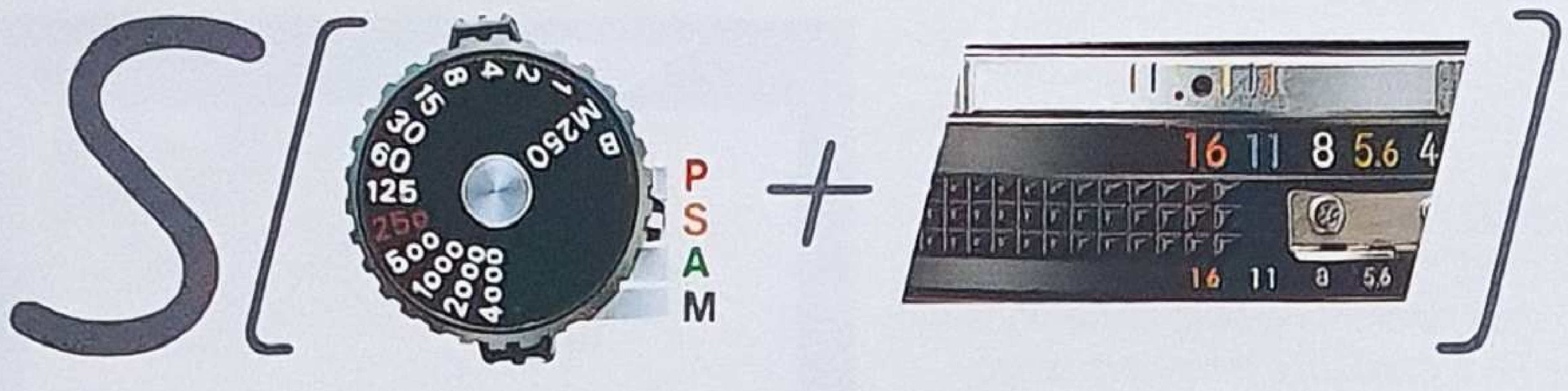




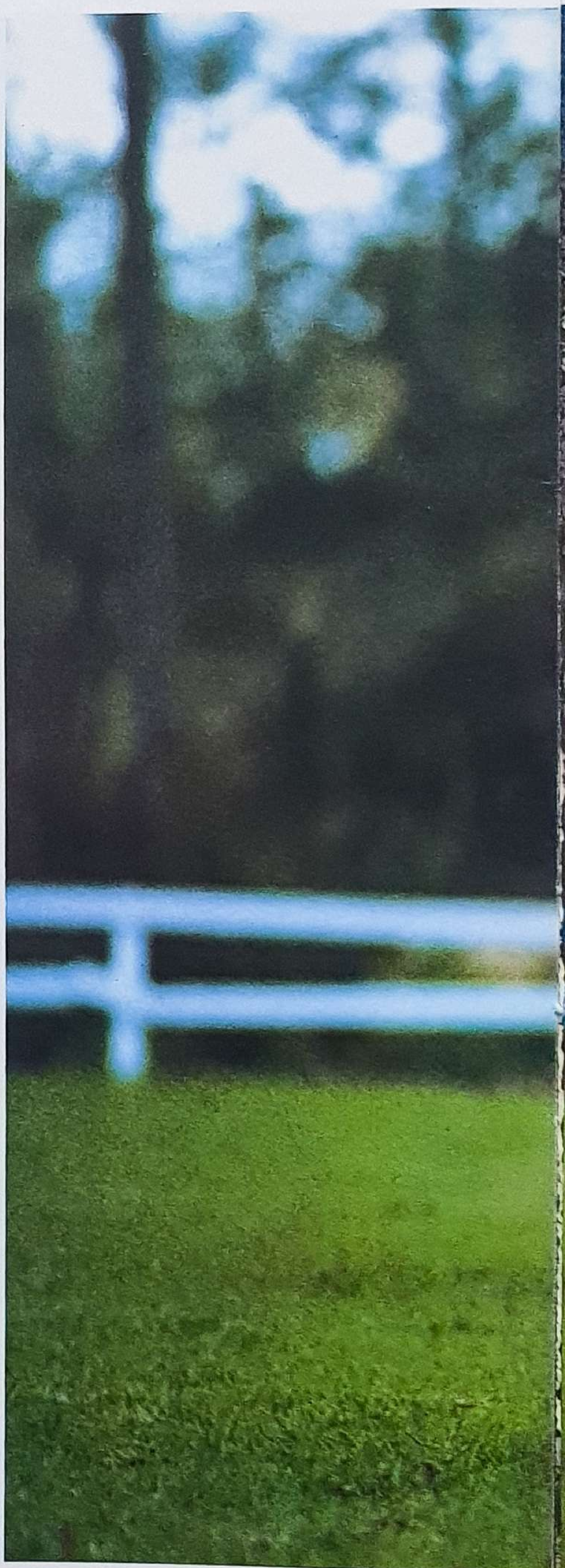
*The digital LCD readout shows the shutter speed selected. “HI” means too bright and “Lo” too dark, indicating both conditions fall outside the FA's exposure metering range; “FEE” indicates that the lens is set at an aperture f-number other than the largest engraved on the lens barrel and suggests that, to assure correct exposure, the lens be reset to the largest f-number, even though the FA can in fact cybernetically override shutter speed to some degree.*

*Nikkor 135mm f/2. On P (High-Speed Program)*





# Shutter-Priority with Cybernetic Override



*There will be times when you want to freeze a moving subject at 1/4000 sec., or blur it intentionally at slow shutter speeds to create the effect of movement—i.e., subject motion blur technique. That's when Shutter-Priority exposure control has its day. Set the shutter speed as you like in order to express your feeling about the subject, stop the lens down to the minimum aperture position (i.e., the largest f-number engraved on the lens barrel), and THE TECHNOCAMERA automatically picks the matching lens aperture steplessly for correct exposure. For instance, you can choose high shutter speeds like 1/2000 or 1/4000 sec. to stop a subject in motion or minimize the effects of camera shake when using a telephoto lens.*

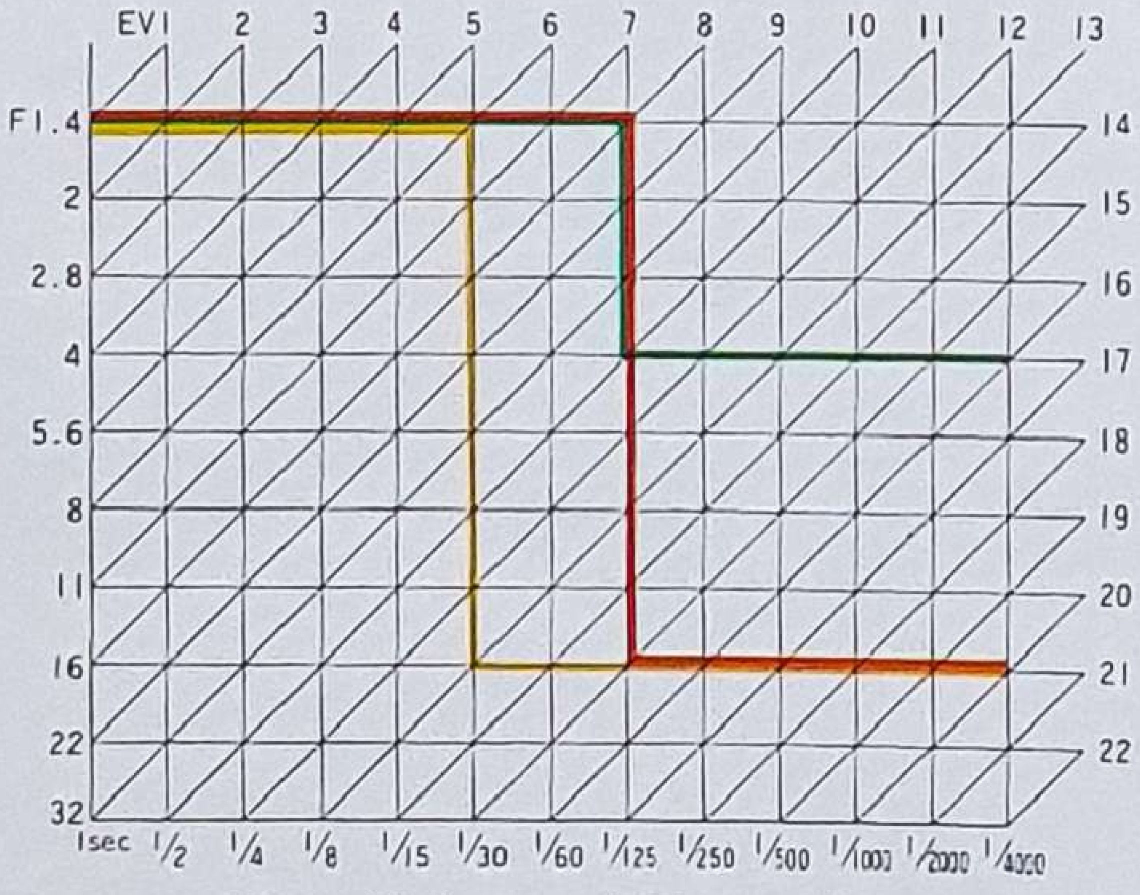
*On the other hand, you can blur the background creatively by following moving subjects at 1/60 or 1/30 sec. while holding the camera tightly. This technique is called "panning."*

*Whatever technique or type of fast-breaking photography interests you, with the FA in the Shutter-Priority auto-exposure mode, it's easy. Nikon's Automatic Multi-Pattern Metering assures proper exposure for even strongly backlit moving subjects.*

*A noteworthy merit of the Shutter-Priority auto-exposure mode is its effectiveness in minimizing image blur due to camera shake, a phenomenon commonly seen in beginning photographers' photos.*

***Cybernetic override***

*You have a choice of 13 shutter speeds from 1 to 1/4000 sec. In the Shutter-Priority auto-exposure mode, two types of cybernetic override are available. If the shutter speed you set cannot produce a matching metered aperture within the working maximum-to-minimum-aperture range when the lens is stopped down to the minimum aperture, cybernetic override is automatically activated. Thus, if the subject is too bright for the lens to cope with at its minimum aperture, there is an automatic switchover to higher shutter speeds until the balance for correct exposure is obtained; for subjects that are too dark, cybernetic override executes a switchover to lower shutter speeds automatically.*

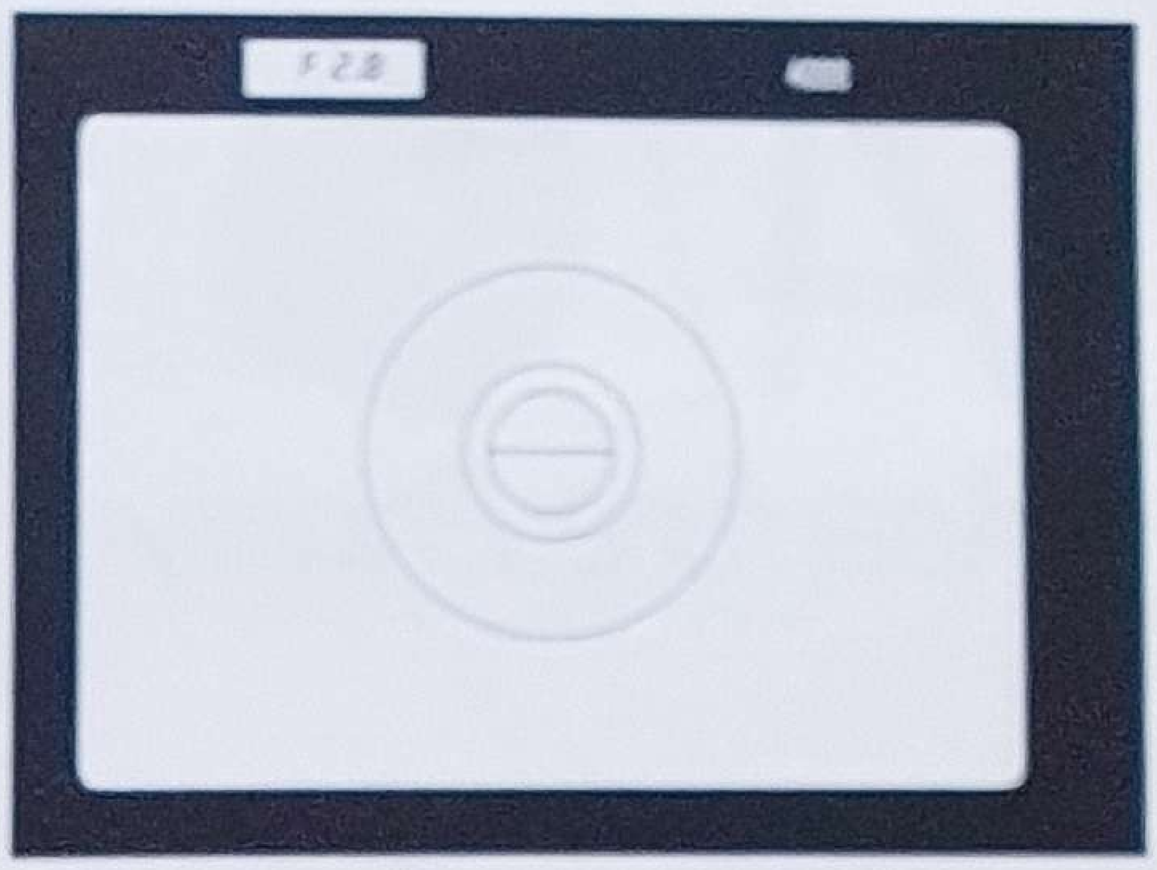


🟨 *50mm f/1.4, set at 1/30 sec., f/16*
🟥 *50mm f/1.4, set at 1/125 sec., f/16*
🟩 *50mm f/1.4, set at 1/125 sec., f/4*

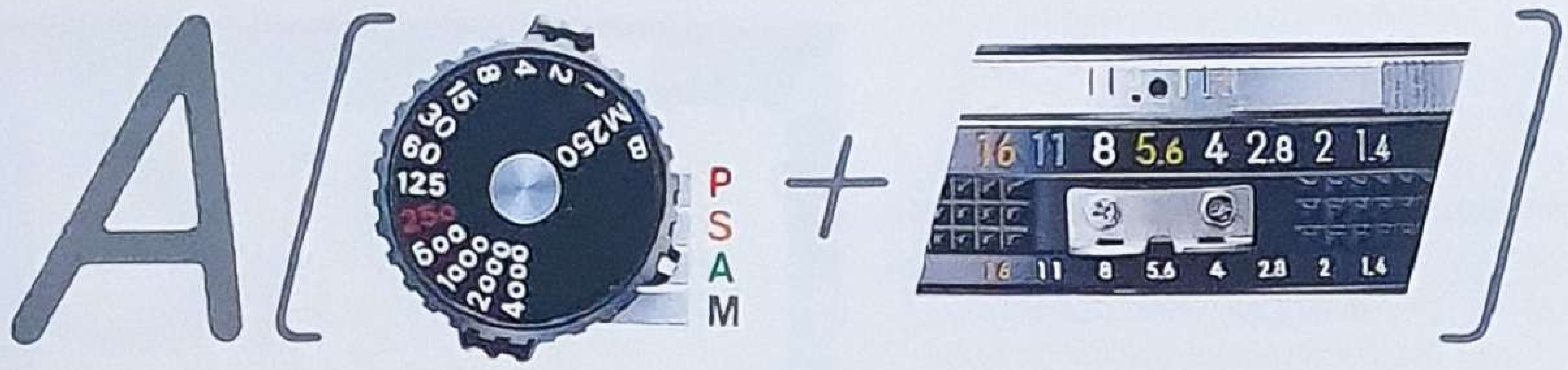
*Also, if you inadvertently or* ***intentionally*** *set the lens aperture position to a setting other than the minimum aperture position, the camera will then choose the matching metered shutter speed for correct exposure.* ***This means that even in the Shutter-Priority auto-exposure mode, you can positively exercise depth-of-field control without missing those "once-in-a-lifetime" shots.***

*The shutter speed you set is shown at top right. The digital LCD readout shows the f-number matching this speed for correct exposure. A shutter speed numerical LCD indication means the speed you set has been cybernetically overriden."L o" means it's too dark, and "H I" too bright, both conditions being outside the exposure metering range. "F E E" means correct exposure is unobtainable even with cybernetic override because the lens is set to a position other than the minimum aperture. With a modified AI type* Nikkor lens, the LCD shows "F - -" instead of the f-number selected by the FA.*

** See "AI-S type lenses," page 24.*



*Nikkor 180mm f/2.8 ED. On S. Shutter speed: 1/4000 sec. Aperture: f/2.8. ASA/ISO 200*



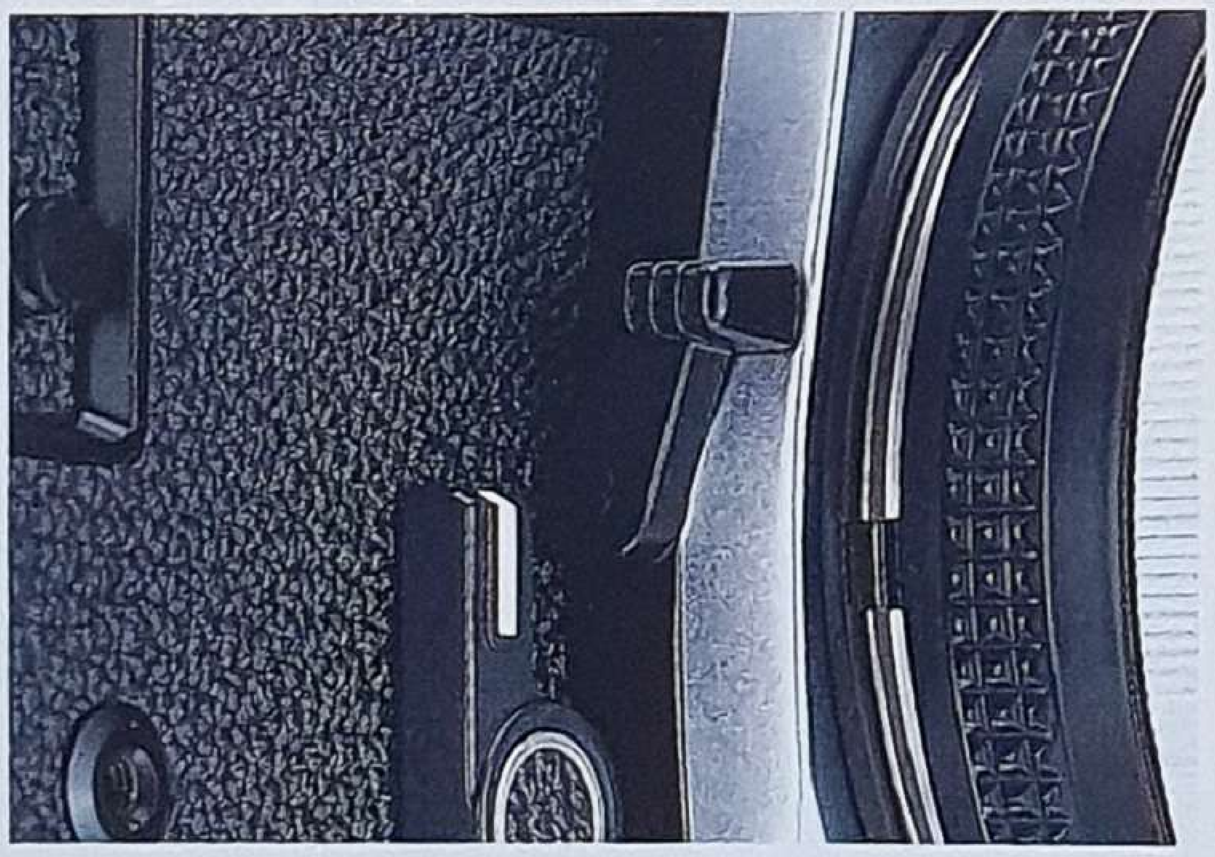
# Aperture-Priority with Stopped-Down Auto-Exposure

*When you want to balance foreground and background or stress the main subject to the exclusion of all else, the Aperture-Priority auto-exposure mode is recommended. You set the lens aperture—THE TECHNOCAMERA automatically picks the matching stepless shutter speed for correct exposure. The basic technique is to set maximum aperture (i.e., the smallest f-number engraved on the lens barrel) at low light conditions, f/4 or f/5.6 on a cloudy day or when shooting in the shade, and f/8 or larger f-numbers when the sun's up or it's a bright day.*

*Aperture-Priority auto-exposure control enables you to control depth of field, thus giving you full access to the selective focusing technique. Depth of field becomes shallower as you gradually open up the lens. Areas other than the subject in focus appear blurred—perfect for fast medium-telephoto portraiture when you wish your model to stand out from the background. You can also create sharp focus for an awesome landscape from foreground to background by setting the lens down to f/11 or so. The selective focusing technique brings you pictures rather different in appeal from others.*

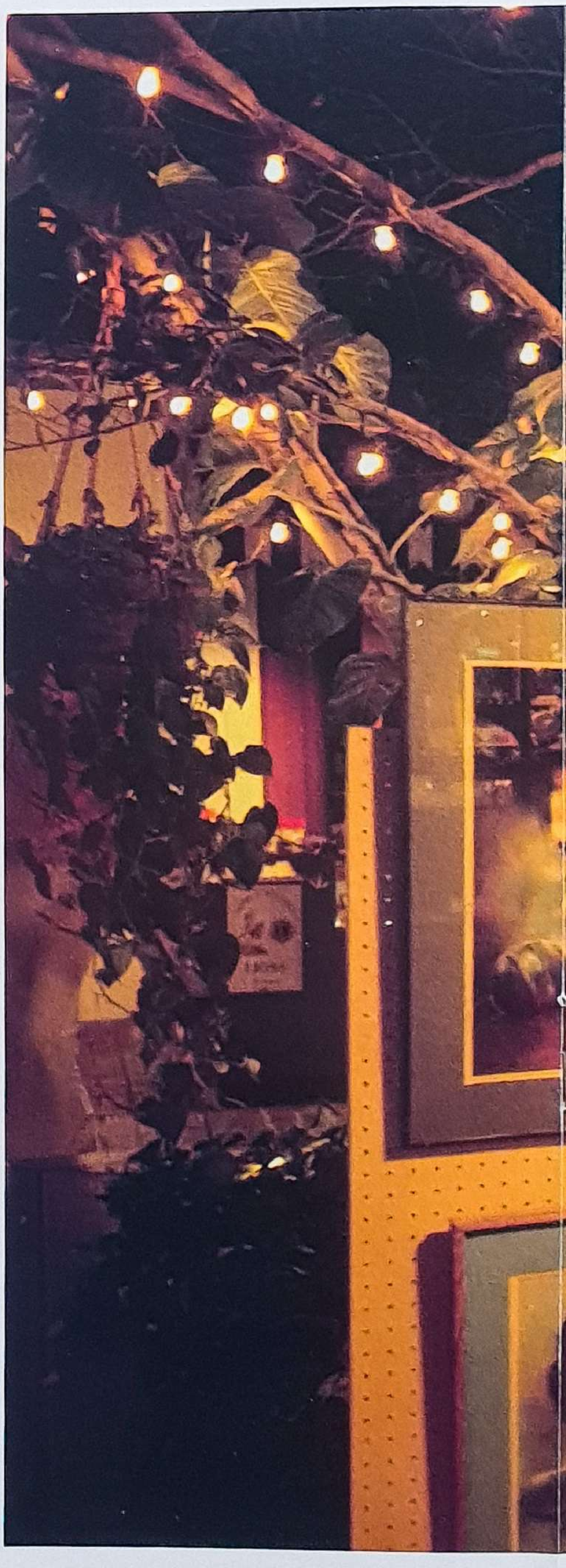
*Aperture-Priority auto-exposure is likewise effective in nighttime and theatre photography. Here, it's best to set the lens to the maximum aperture to obtain the fastest possible matching shutter speed for overcoming the effects of camera shake. And with Nikon Automatic Multi-Pattern Metering, unfavorable lighting conditions need not discourage you either.*

*A great advantage of THE TECHNOCAMERA's Aperture-Priority auto-exposure mode is the possibility of using lenses with fixed apertures such as mirror or Reflex lenses.*

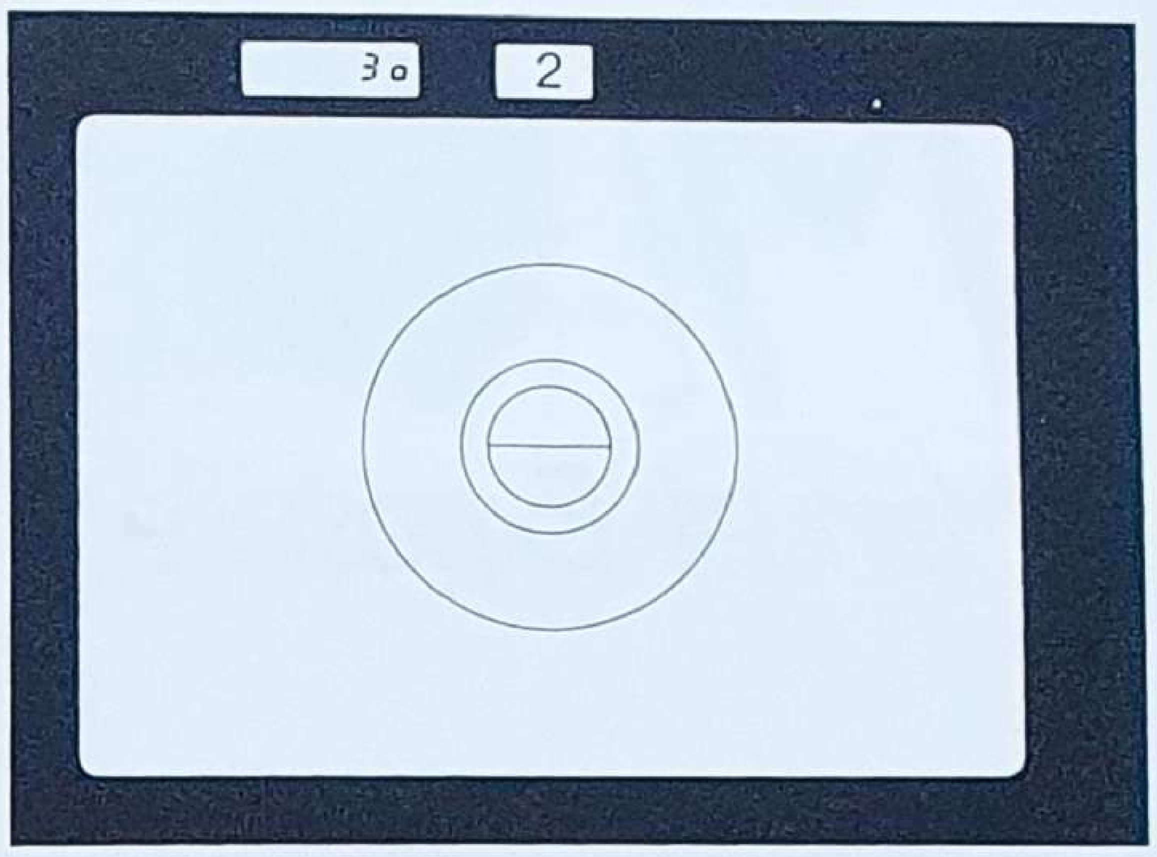


***Stopped-down auto-exposure***

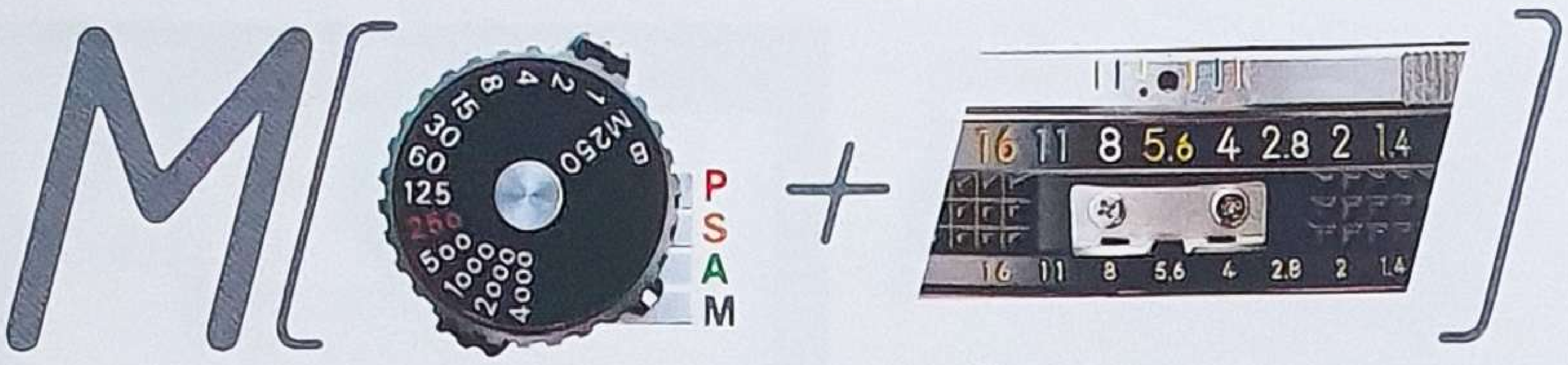
*Although bellows equipment doesn't have an automatic aperture lever, you can use it with the FA in the Aperture-Priority stopped-down auto-exposure mode by depressing the FA's depth-of-field preview lever completely as the shutter release button is pressed; centerweighted metering is automatically activated. The digital LCD readout shows the metered shuttered speed.*



The f-number you set is shown through the ADR (aperture direct readout) window, top middle. The LCD readout shows the shutter speed selected by the camera. “HI” means the brightness level is too high and “Lo” too dark, both conditions being outside the working range.



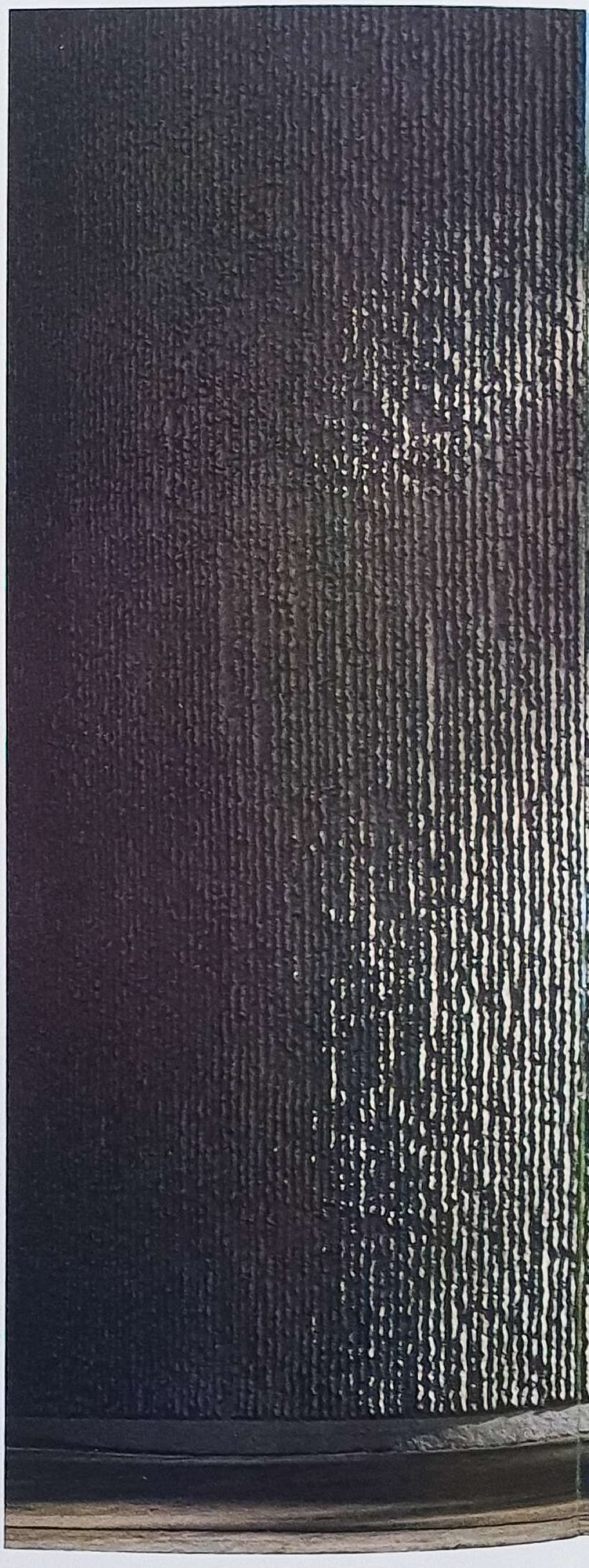
Nikkor 28mm f/2. On A. Aperture: f/2. Shutter speed 1/30 sec. ASA/ISO 200

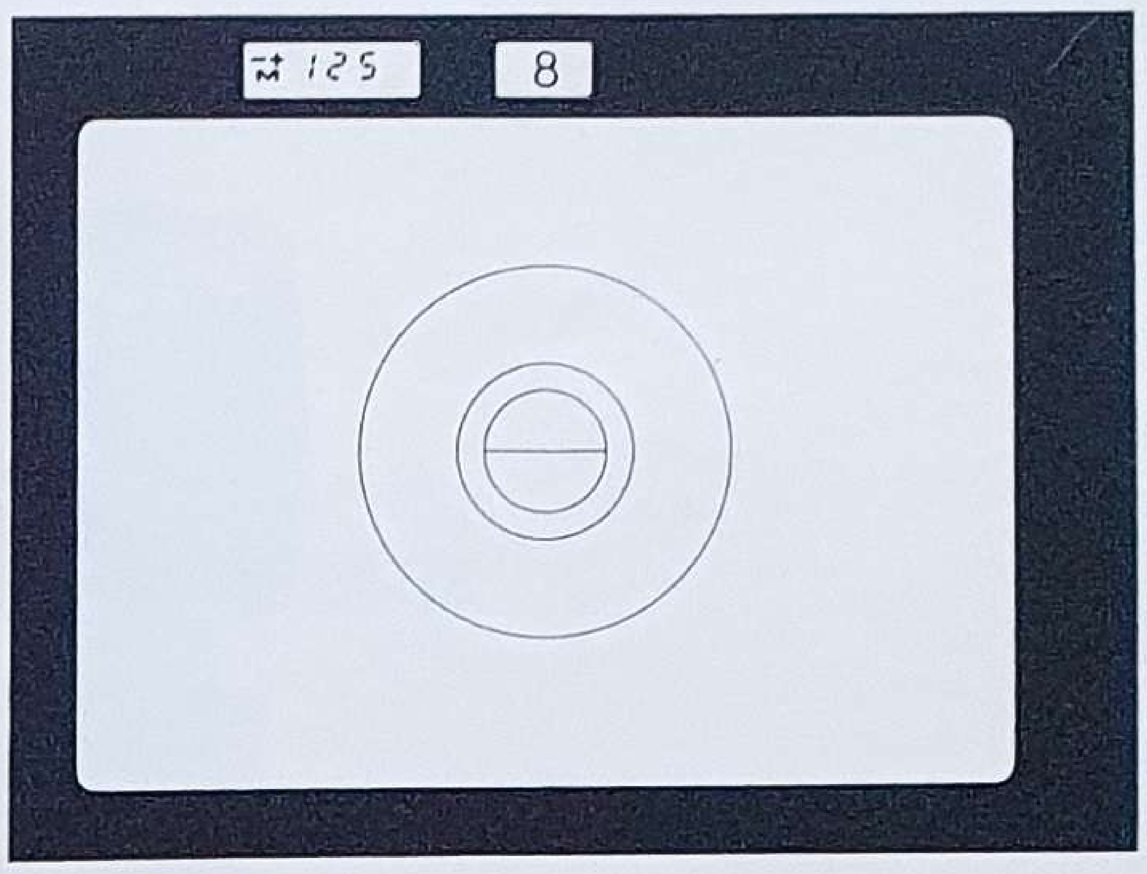


# Manual Exposure

Nikkor 85 mm f/1.4. On M. Shutter speed: 1/500 sec. Aperture f/5.6. ASA/ISO 64

*For the artistic, creatively oriented photographer for whom photography is a means of self-expression, the Nikon FA makes available a Manual mode. So you can custom-tailor your photos to your own taste and feeling towards your subject. Nothing but your imagination limits you—you're the complete master of the situation.*
*On M, it's entirely up to you to determine which aperture and shutter speed to utilize to render a specific scene whether in color or black-and-white. All 13 shutter speeds from 1/4000 to 1 sec. are digitally controlled and based on the FA's 524.288 kHz oscillation for absolutely precise timing. Look through THE TECHNOCAMERA's viewfinder and, if you like, refer to the digital LCD shutter speed indication at top left and to the aperture f-number you set at top center. The convenient display lets you pour all your creative energy into making exactly the types of pictures you want, with no holds barred.*
*In the Manual exposure mode, the FA's exposure metering system automatically changes to Nikon's performance-proven 60% centerweighted metering system. And you can give full play to your original conception of the scene before you, with only your own artistic perceptions and originality to consider. Realistic or avant garde, your photos can be as masterful as you want them to be.*





*The digital LCD display shows the shutter speed you set, prefixed by “ $\text{M}$.” “$\overset{-+}{\text{M}}$ 125” means correct exposure, “$\overset{-}{\text{M}}$ 125” underexposure and “$\overset{+}{\text{M}}$ 125” overexposure. The aperture f-number you set is shown at top center.*

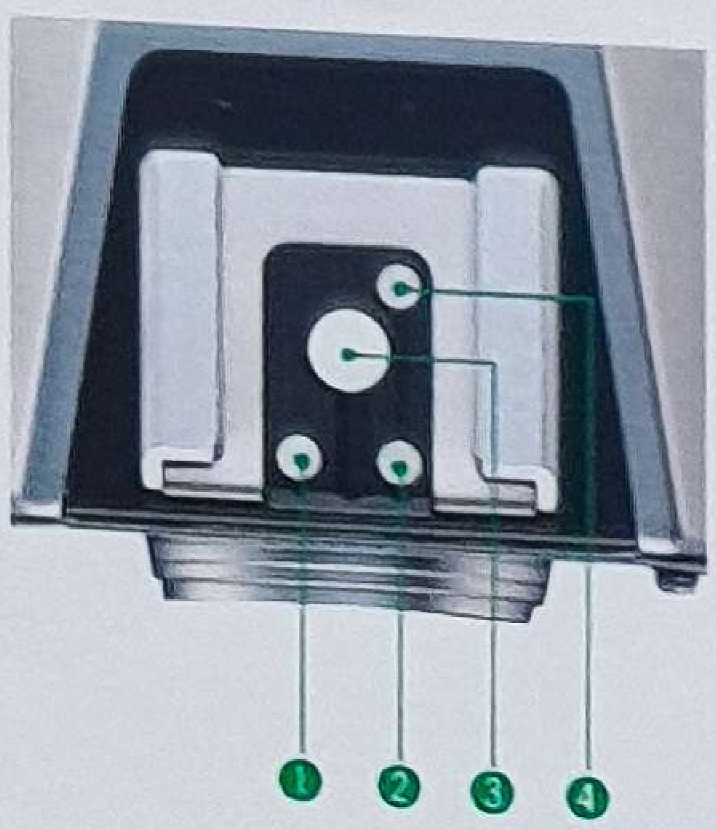
*Nikkor 200mm f/4. On M. Shutter speed: 1/125 sec. Aperture: f/8. ASA/ISO 64*

# TECHNOFLASH

SB-15

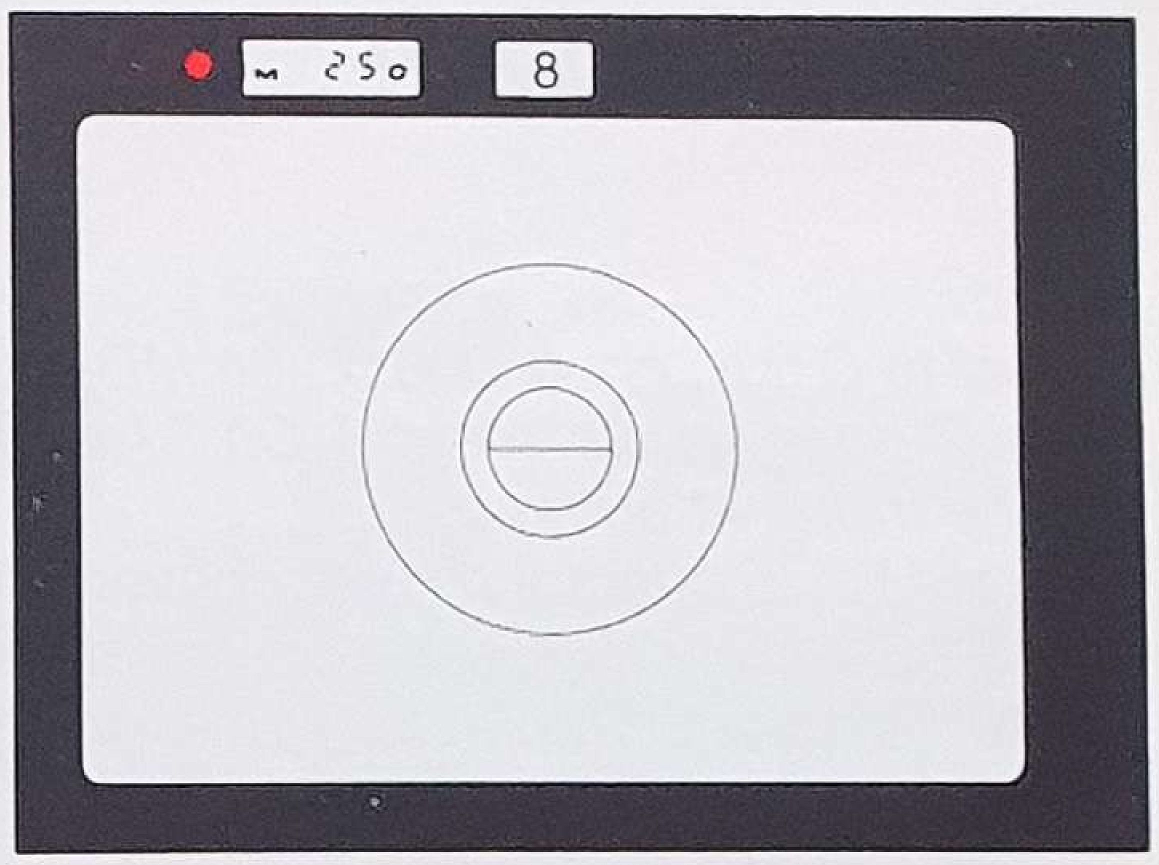
SB-16B

Slip the SB-15 or SB-16B Speedlight Unit onto THE TECHNOCAMERA and you're into the world of TECHNOFLASH—complete with TTL (through-the-lens) flash metering and 1/250 sec. flash sync speed.
For creative depth-of-field control in any of the FA's auto-exposure "technomodes," select the lens aperture, and the shutter speed will be automatically set at 1/250 sec. You take a properly exposed picture of your subject every time because THE TECHNOCAMERA's brain controls TTL flash metering and automatic flash output. No complicated procedures to take—the FA's in charge; you just set the aperture and shoot.
TTL flash metering consistently assures you of properly exposed pictures, even if the aperture position is inadvertently moved as the shutter is being released. That's because THE TECHNOCAMERA's sensor reads the light directly reflected off the film being exposed, and its microcomputer processes and executes flash output control of the SB-15 or SB-16B.
The peak sync speed of 1/250 sec., on the other hand, allows the creative photographer to use the selective focusing technique even in broad daylight or to freeze moving subjects in their tracks. With a much wider range of lens apertures at your disposal, selective focusing becomes a truly creative tool in synchro-sunlight photography.
THE TECHNOCAMERA's microcomputer tells you via a red LED if battery power is fully charged; the LED blinks to recommend that you move closer to your subject or use a wider aperture to avoid possible underexposure.



① Ready-light contact
② TTL auto flash output control contact
③ Hot-shoe contact
④ Monitor contact

*In the P, S and A modes,“250”will automatically appear; this will also be the case in the Manual mode if the shutter speed is set anywhere from 1/4000 sec. to 1/500 sec. When the shutter speed set is 1/250 sec. or lower in the Manual mode, the shutter speed in use will be displayed. The LED ready-light lights up when the flash unit is fully recycled. The ready-light blinks to warn of insufficient flash output or incorrect setting of the film speed and/or shutter speed.*



*Nikkor 28mm f/2. On M. 1/250 sec. sync speed. Aperture: f/8. ASA/ISO 64. Speedlight: SB-16B*

### Speedlight SB-15 Specifications

| | |
|---|---|
| **Light output control:** | Silicon thyristor-controller rectifier and series circuitry; TTL automatic flash output control with Nikon FA, Nikon FE2, Nikon FG |
| **Guide number:** | 25 (ASA/ISO 100 and meters) at full output; 7 in MD (motor-drive) mode |
| **Recycling time:** | Approx. 8 sec. with alkaline-manganese batteries at full output |
| **No. of flashes:** | Approx. 160 with alkaline-manganese batteries at full output |
| **Angle of flash coverage:** | Covers picture angles of 35mm, 28mm (with SW-6) lenses |
| **Power source:** | Four 1.5V AA-type penlight batteries |
| **Dimensions:** | Approx. 101mm(W)×42.5mm(H)×90mm(D) (excluding mounting foot) |
| **Weight:** | Approx. 270g (excluding batteries) |

### Speedlight SB-16B Specifications

| | |
|---|---|
| **Light output control:** | Silicon thyristor-controller rectifier and series circuitry; TTL automatic flash output control with Nikon FA, Nikon FE2, Nikon FG |
| **Guide number:** | 32 (ASA/ISO 100 and meters) at full output; 8 in MD (motor-drive) mode |
| **Recycling time:** | Approx. 11 sec. with alkaline-manganese batteries at full output |
| **No. of flashes:** | Approx. 100 with alkaline-manganese batteries at full output |
| **Angle of flash coverage:** | Covers picture angles of 85mm, 50mm, 35mm, 28mm, 24mm (with SW-7) lenses by zooming main flash head |
| **Power source:** | Four 1.5V AA-type penlight batteries |
| **Dimensions:** | Approx. 82mm(W)×144mm(H)×100mm(D) |
| **Weight:** | Approx. 470g (excluding batteries) |

# TECHNODRIVE

Motor Drive MD-15

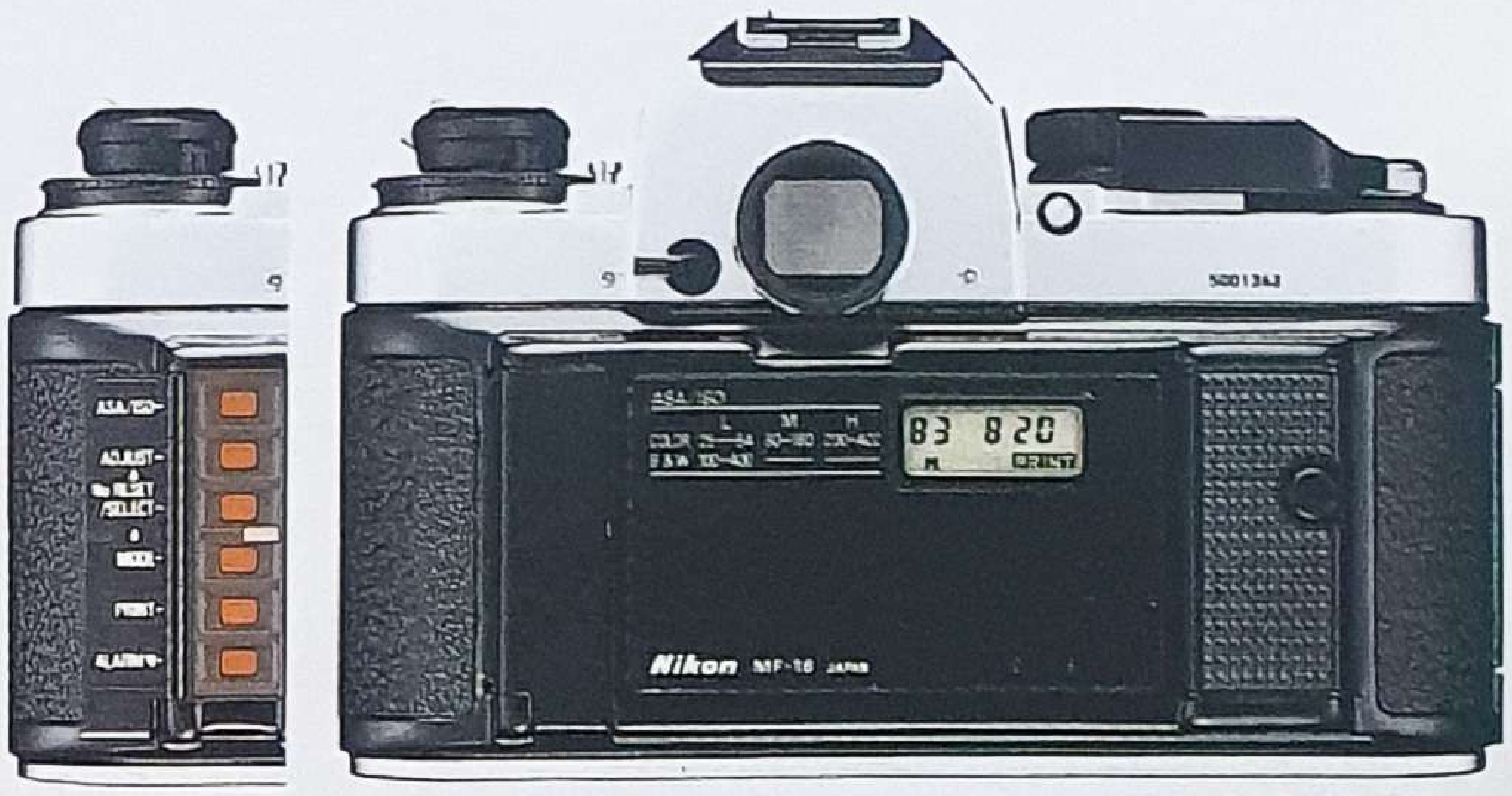
*Set to C (i.e., continuous), the MD-15 Motor Drive shoots up to 3.2 frames per second. On S (single-frame), it fires away one frame at a time.*
*The MD-15 offers a host of convenient features. For instance, the camera body's batteries are automatically turned off and the FA runs on the Motor Drive MD-15's batteries when the unit is attached to it. This assures that, even if the camera's batteries are exhausted, you can still go into TECHNODRIVE. Also, the MD-15 is electrically triggered in the same way as the camera's shutter release button, so it instantly responds at the touch of your finger.*

*Nikkor 600mm f/4 IF-ED. Shutter speed: 1/1000 sec. Aperture: f/4. ASA/ISO 64*

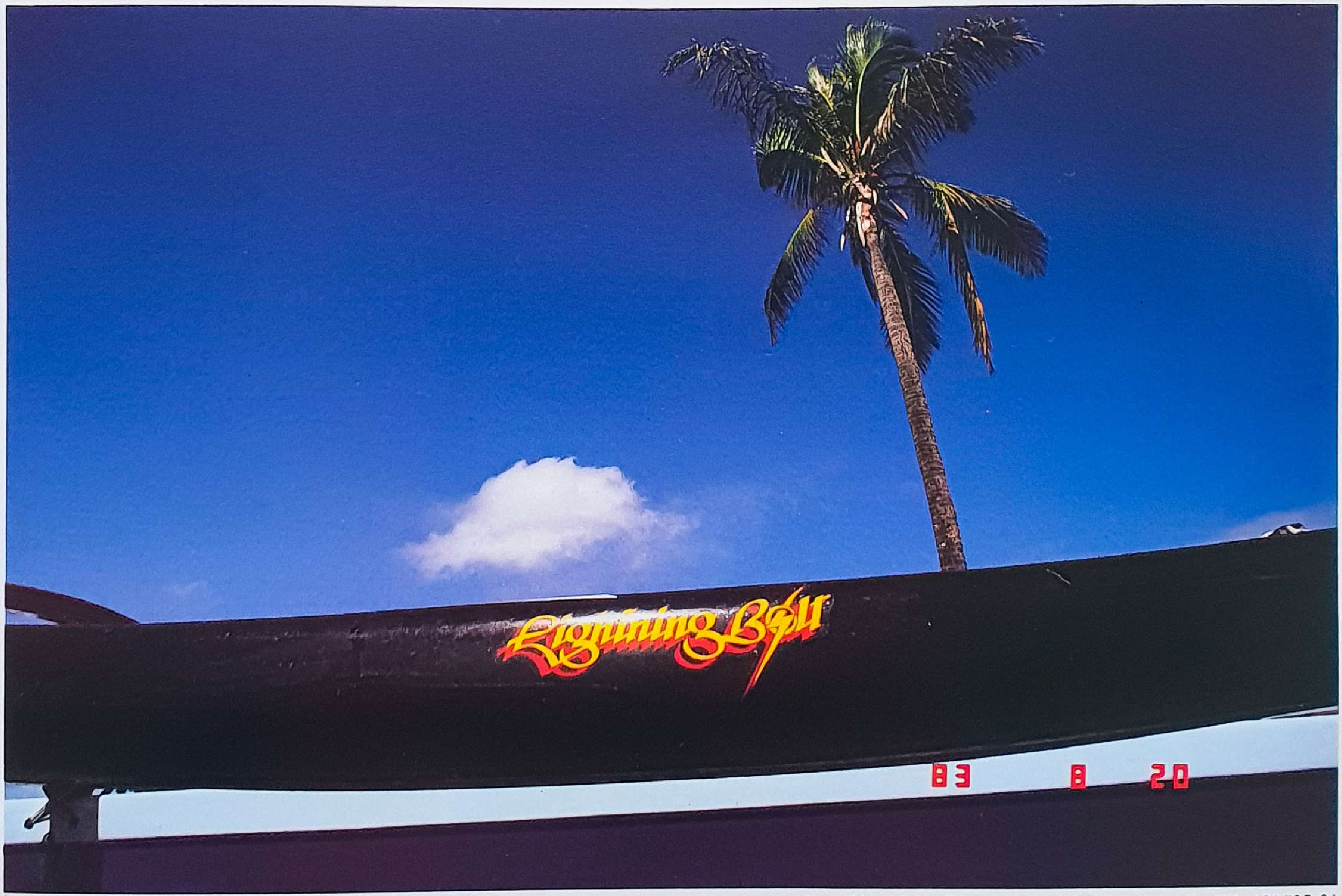
### Motor Drive MD-15 Specifications

| | |
|---|---|
| **Shooting speed:** | *Up to approx. 3.2 fps at 1/125 sec. shutter speed or faster* |
| **Shooting modes:** | *Single-frame (S)*<br>*Continuous (C)* |
| **Usable shutter speeds:** | *Any speed from 1/4000 to 1 sec.* |
| **Meter switch:** | *Trigger button acts as meter "on" switch and automatically goes "off" approx. 16 sec. later* |
| **Remote control:** | *Possible; uses standard Nikon 3-pin connector* |
| **Power source:** | *Eight 1.5V penlight batteries (AA size, in integral battery holder)* |
| **Dimensions:** | *Approx. 147.5mm (W) × 99mm (H) × 73mm (D) (including grip)* |
| **Weight:** | *Approx. 390g (excluding batteries)* |

*Keeping track of time as it passes with pictures makes for good memories and mementos. The quartz-timed MF-16 Data Back is available for just that purpose. With this accessory, you can record year/month/day or day/hour/minute on your pictures, or assign them numbers. Whichever type of data you decide on, it's clearly, unobtrusively printed on the finished photograph in red numerals. The MF-16 can be attached to the Nikon FA as a regular camera back. It also doubles as a precision timepiece with alarm.*



*Data Back MF-16*



*Nikkor 20mm f/3.5. Shutter speed: 1/500 sec. Aperture: f/11. ASA/ISO 64*

## Data Back MF-16 Specifications

| | |
|---|---|
| **Usable cameras:** | *Nikon FA, Nikon FE2, Nikon FM2* |
| **Usable film speeds:** | *ASA/ISO 25—400 (color film); ASA/ISO 100—400 (B&W film)* |
| **Type of figures imprinted:** | *6 digits max.; in red* |
| **Data display:** | *By 7-segment, 6-digit (max.) LCD* |
| **Data selecting/ setting:** | *Via MODE button, No. RESET/SELECT button and ADJUST button* |
| **Imprint data:** | *Year/Month/Day (up to 2100 A.D.), Day/Hour/Minute (hour and minute underscored), or no. of pictures (up to 2,000); data imprint ON/OFF by pushing PRINT button* |
| **Imprint signal:** | *Via direct contacts on camera body* |
| **Audio alarm (clock mode):** | *20 sec. long at the time set* |
| **Power source:** | *Two 1.55V silver-oxide batteries (SR-44 type)* |
| **Dimensions:** | *142.5mm(W)×53mm(H)×26.5mm(D)* |
| **Weight:** | *Approx. 90g (excluding batteries)* |

# TECHNOSYSTEM

*Still one of the strongest reasons for making THE TECHNOCAMERA one of your valued possessions is automatic membership in the Nikon System, the most comprehensive in all of photography.*

*For a start you have a choice of more than 60 Nikkor and Nikon Series E lenses that fully meet the demand for all kinds of lenses: easy-to-use lenses, faster interchangeable lenses, powerful zoom lenses, popular zoom lenses with two or three times zooming ratio, and high-speed wideangle-to-telephoto lenses.*

*Nikon-developed innovations that assure superb performance include Nikon Integrated Coating (NIC) which reduces reflection and minimizes flare, thus assuring ghost-free images and natural color rendition. There's also Nikon's unique Extra-low Dispersion (ED) glass which assures maximum correction of chromatic aberrations in medium to supertelephoto lenses. And Nikon's Internal Focusing (IF) system which makes Nikkor telephotos lighter and more compact. Plus a Close-Range Correction system which ensures images of the highest quality even when shooting at the closest focusing distance with a wideangle, micro or short telephoto lens.*

*As for the rest of the Nikon System, name it and it's there: from close-up accessories, including bellows, and remote control accessories to all kinds of lens filters and hoods, etc.*

**Nikkor Lenses**

**Wideangle**
*13mm f/5.6*
*15mm f/3.5*
*18mm f/3.5*
*20mm f/3.5*
*24mm f/2*
*24mm f/2.8*
*28mm f/2*
*28mm f/2.8*
*28mm f/3.5*
*35mm f/1.4*
*35mm f/2*
*35mm f/2.8*

**Normal**
*50mm f/1.2*
*50mm f/1.4*
*50mm f/1.8*

**Telephoto**
*85mm f/1.4*
*85mm f/2*
*105mm f/1.8*
*105mm f/2.5*
*135mm f/2*
*135mm f/2.8*
*135mm f/3.5*
*180mm f/2.8 ED*
*200mm f/2 IF-ED*
*200mm f/4*
*300mm f/2.8 IF-ED*
*300mm f/4.5*
*300mm f/4.5 IF-ED*
*400mm f/3.5 IF-ED*
*400mm f/5.6 IF-ED*
*600mm f/4 IF-ED*
*600mm f/5.6 IF-ED*
*800mm f/8 IF-ED*
*1200mm f/11 IF-ED*

**Reflex**
*500mm f/8*
*1000mm f/11*
*2000mm f/11*

**Zoom**
*25—50mm f/4*
*35—70mm f/3.5*
*35—105mm f/3.5—f/4.5*
*50—135mm f/3.5*
*80—200mm f/2.8 ED*
*80—200mm f/4*
*50—300mm f/4.5 ED*
*180—600mm f/8 ED*
*200—600mm f/9.5*
*360—1200mm f/11 ED*

**Fisheye**
*6mm f/2.8*
*8mm f/2.8*
*16mm f/2.8*

**Special Purpose**
*AF 80mm f/2.8*
*AF 200mm f/3.5 IF-ED*
*PC 28mm f/3.5*
*PC 35mm f/2.8*
*Noct 58mm f/1.2*
*Micro 55mm f/2.8*
*Micro 105mm f/4*
*Micro 200mm f/4 IF*
*Medical 120mm f/4 IF*

**Nikon Series E Lenses**
*28mm f/2.8*
*35mm f/2.5*
*50mm f/1.8*
*100mm f/2.8*
*135mm f/2.8*
*36—72mm f/3.5 Zoom*
*75—150mm f/3.5 Zoom*
*70—210mm f/4 Zoom*

**Teleconverters**
*TC-14A*
*TC-14B*
*TC-201*
*TC-301*

### Accessories for Nikon FA

**Close-up equipment:** Focusing stage; Bellows attachment; Extension bellows; Bellows spacer; Macro copy stand; Slide copying adapter; Adapter ring; Macro adapter ring; Auto adapter ring; Auto extension ring; Extension ring set; Close-up attachment lens; Reprocopy outfit; Table clamp; Gray card; Double cable release; Camera cradle

**Speedlights:** SB-15; SB-16B; SB-E; SB-11; SB-14; SB-17

**Speedlight accessories:** Wide-flash adapter; Bracket; Extension cord; Sync cord; Coiled sync cord; TTL sensor remote cord; Battery holder; Extension cord; Sensor Unit; Repeating flash unit; Battery pack; NC battery; NC battery charger; AC unit; Battery pack for Medical Nikkor; Flash unit coupler

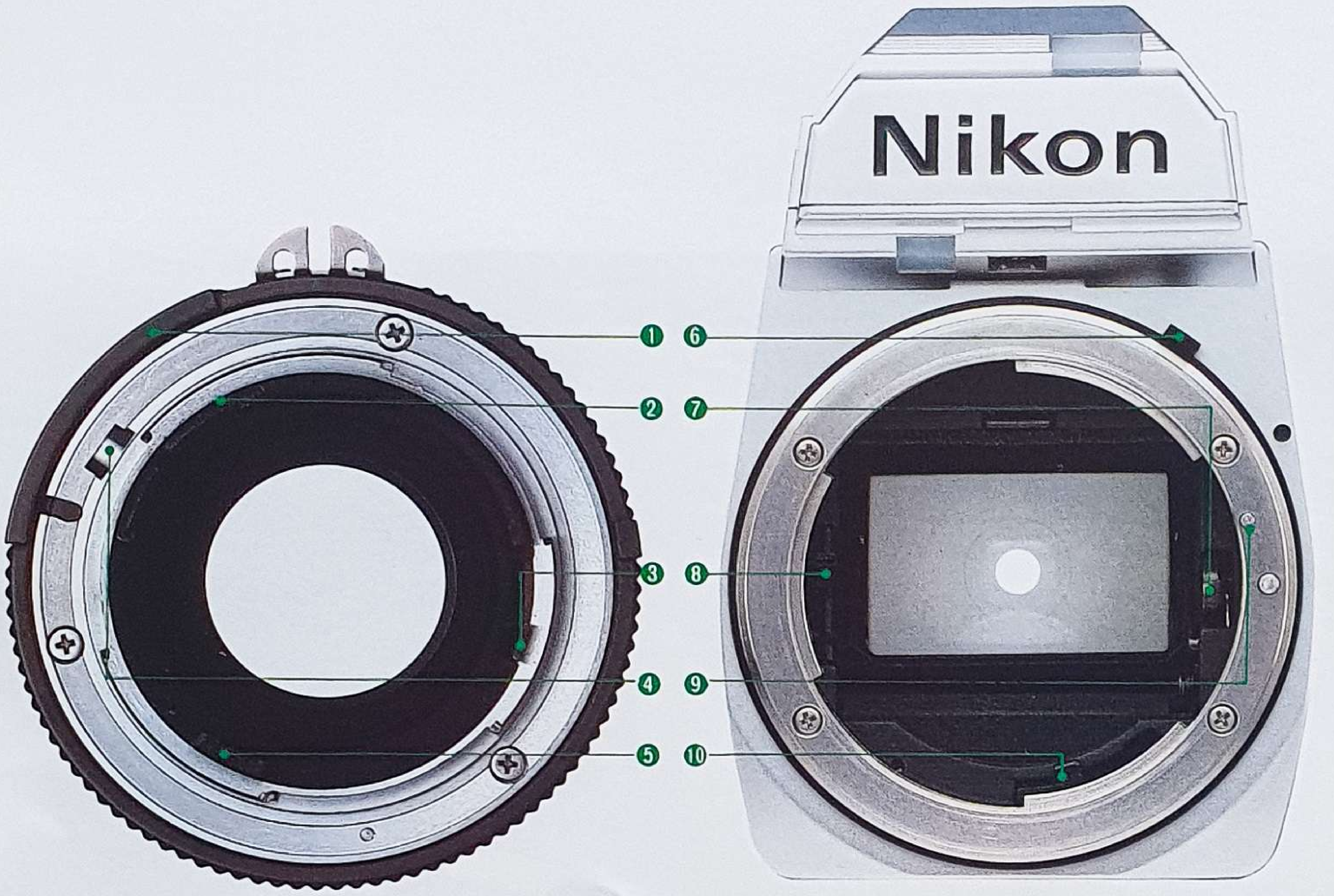
**Motor drive and remote control accessories:** MD-15; MD-12; Radio control set; Modulite remote control set; Intervalometer; Remote cord; Terminal shutter release

**Data back:** MF-16

**Finder accessories:** Eyepiece magnifier; Right-angle viewing attachment; Rubber eyecup; Eyepiece adapter; Eyepiece correction lens; Focusing screen

**Other accessories:** Anti-cold battery holder; Panorama head; Pistol grip; Tripod adapter; Leather neckstrap; Nylon neckstrap; Wide nylon neckstrap; Semi-soft camera case; Semi-soft front flap; Custom shoulder case; Compartment case; Blimp camera case; Shutter cable release; Release adapter; Camera body cap; Lens cap; Lens hood; Filter; Filter case; Gelatine filter holder; Leatherette lens case; Flexible lens pouch; Plastic lens case

# NIKON PERFORMANCE-PROVEN FEATURES



- ① *AI coupling ridge*
- ② *Focal length indexing ridge*
- ③ *Automatic aperture lever*
- ④ *Lens type signal notch*
- ⑤ *Lens speed indexing post*
- ⑥ *AI coupling lever*
- ⑦ *Focal length indexing pin*
- ⑧ *Aperture control coupling lever*
- ⑨ *Lens type signal pin*
- ⑩ *Lens speed indexing lever*

**AI-S type lenses**

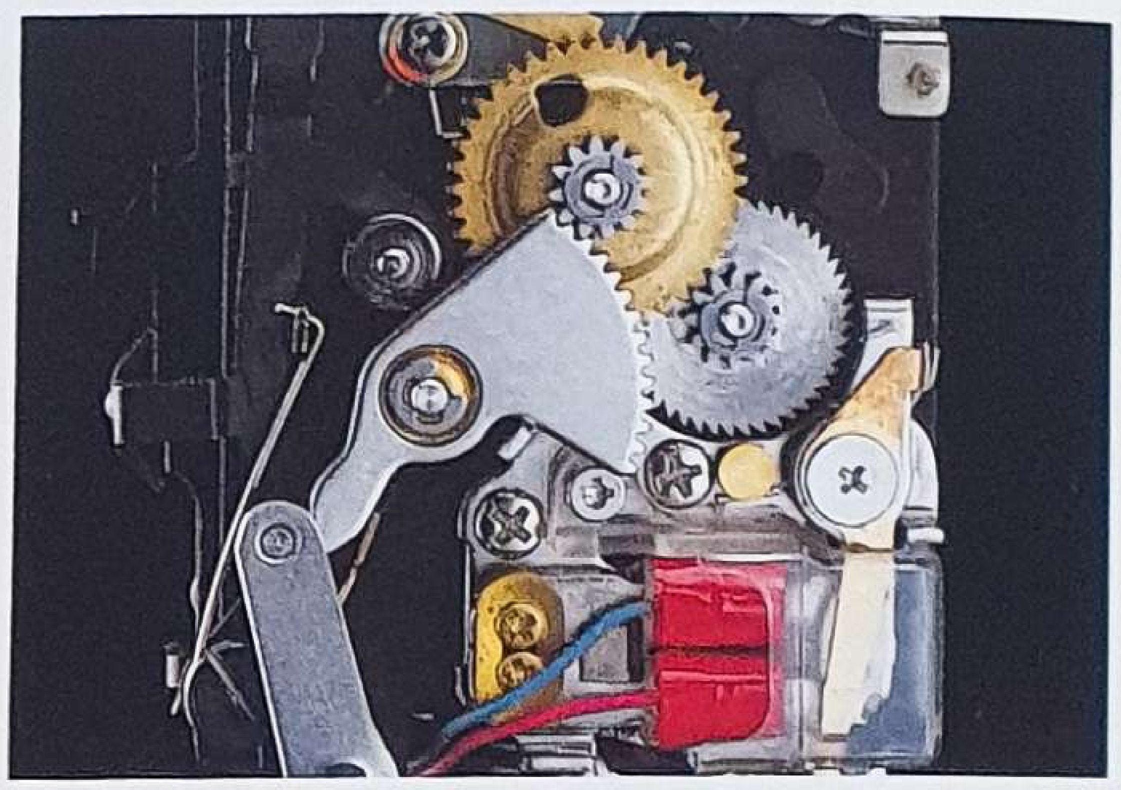
*In anticipation of the increased use of microelectronics in new Nikon cameras such as the FA, several design changes were made in 1981 to Nikkor lenses which do not affect the Nikon bayonet mount or the AI feature which automatically indexes the maximum aperture with the camera's metering system.*

*Designated "AI-S type" lenses to avoid confusion with the AI-type lenses, these Nikkor and Nikon Series E lenses feature a focal length indexing ridge, a lens type signal notch, lens speed indexing post and, for ease of reference, an orange-painted maximum f-number on their aperture ring.*

*Because of the focal length indexing ridge, lens type signal notch, lens speed indexing post and automatic maximum aperture index (AI) system, AI-S type Nikkor and Nikon Series E lenses allow THE TECHNOCAMERA to operate at peak performance, especially in the Dual-Program Mode (in which FA automatically selects either Normal Program or High-Speed Program depending on the focal length of the AI-S type lens in use) and the Shutter-Priority Mode (in which the aperture is precisely controlled and accurately stopped down to the metered f-stop position).*

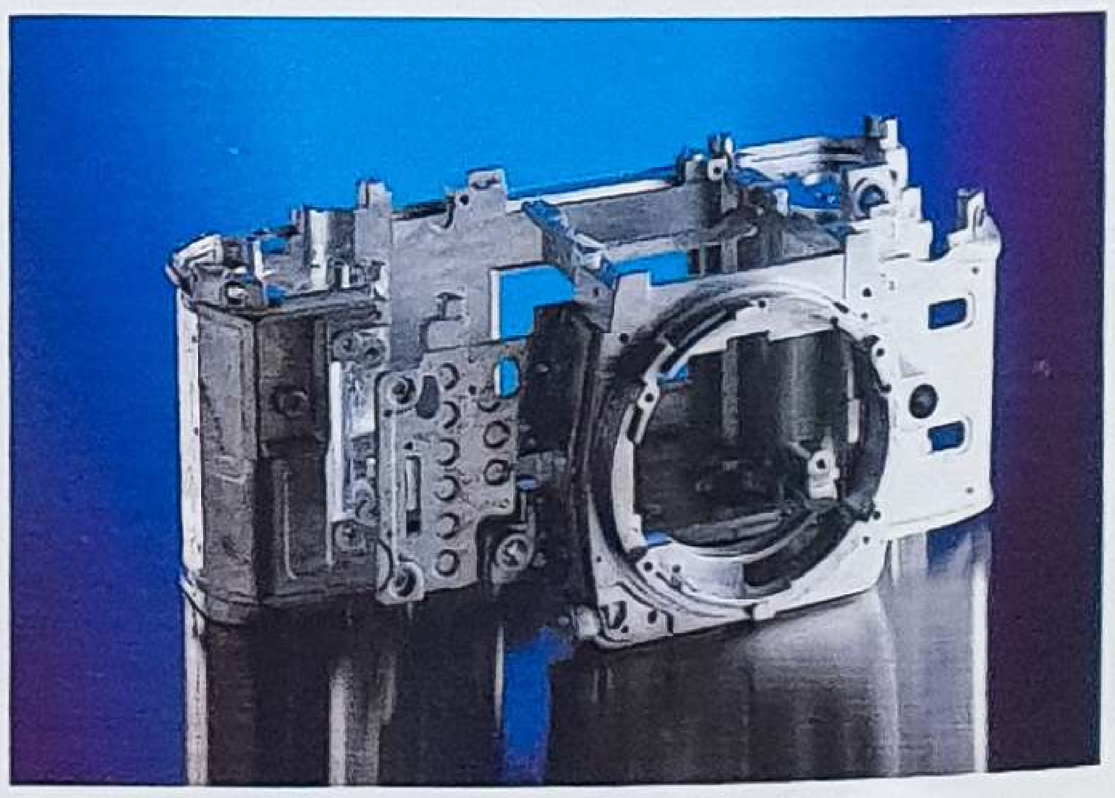
*In conjunction with the FA's introduction, Nikon Teleconverters have also been modified for use with AI-S type lenses. These new Teleconverters are TC-14A, -14B, 201 and 301.*

*THE TECHNOCAMERA's performance may suffer with the use of non-Nikkor and non-Nikon Series E lenses.*



**Aperture control mechanism**

*This enables THE TECHNOCAMERA to precisely control lens aperture. The lens is instantly stopped down to the computerized aperture position by a real-time aperture control signal. Also, until just before the exact moment of exposure, the actual lens aperture value is fed back into the microcomputer for precise shutter speed alteration, in case this becomes necessary.*

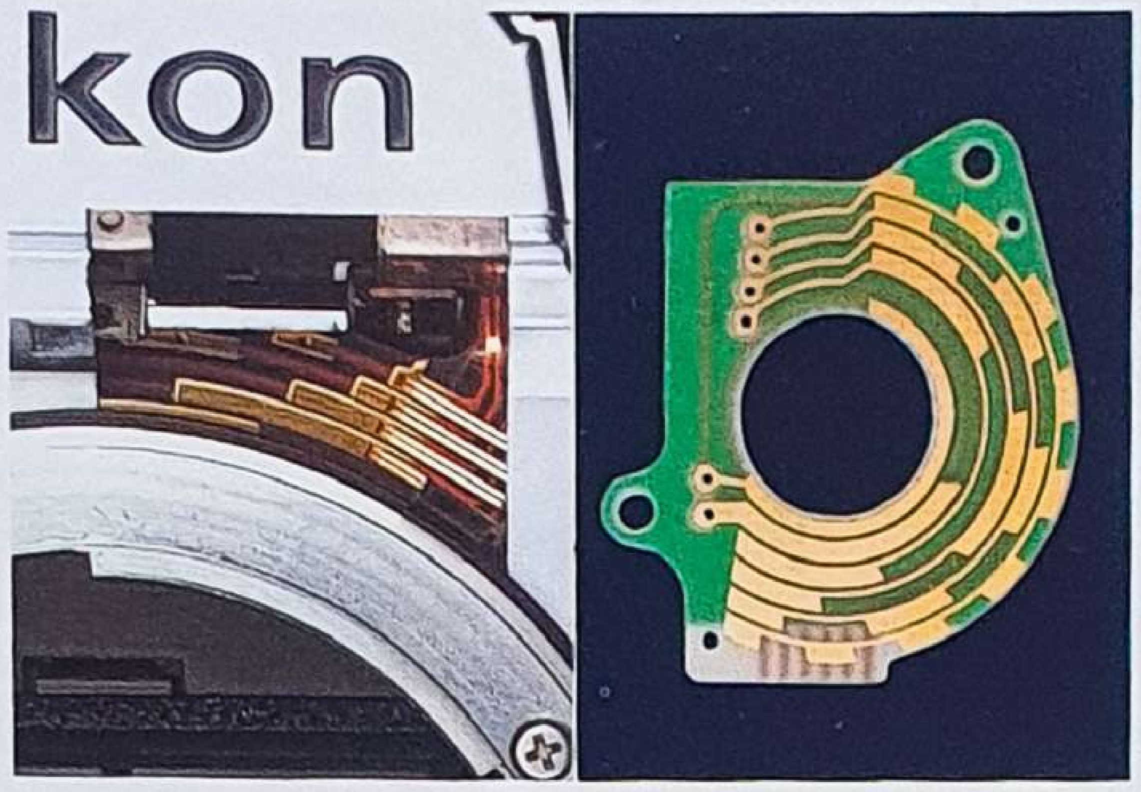


**Special alloy, die-cast body**

*As with other Nikon SLR cameras, including the top-of-the-line F3, the FA's body is cast from copper silumin aluminum which has great rigidity and resistance to metal fatigue and corrosion. Temperature and humidity extremes do not affect this durable body which enables the FA to perform at peak condition every time.*

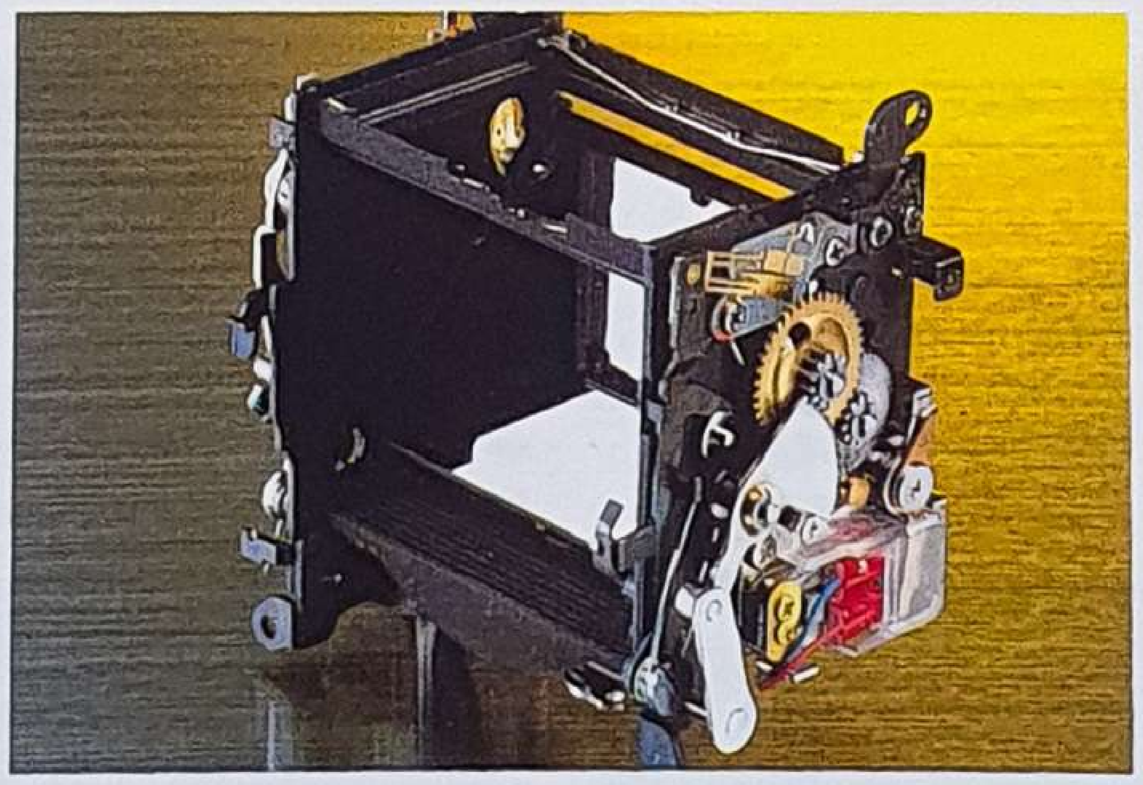
**Titanium shutter curtains**

*The Nikon FA is the only multi-mode auto-exposure camera with a top shutter speed of 1/4000 sec. and a flash sync speed of 1/250 sec., made possible by its use of a Nikon exclusive—titanium shutter curtains. These curtains are made of the tough modified honeycomb-patterned titanium Nikon has perfected after over 20 years of titanium processing. Their use enables a top shutter speed of 1/4000 sec. to virtually eliminate image distortion over the image area. Additionally, the titanium curtains have only 60% of the running mass of other metal curtains, so camera vibration is negligible even in hand-held shooting. With worries about picture blur gone, you can really put the high resolution of your Nikkor and Nikon Series E lenses to good use.*



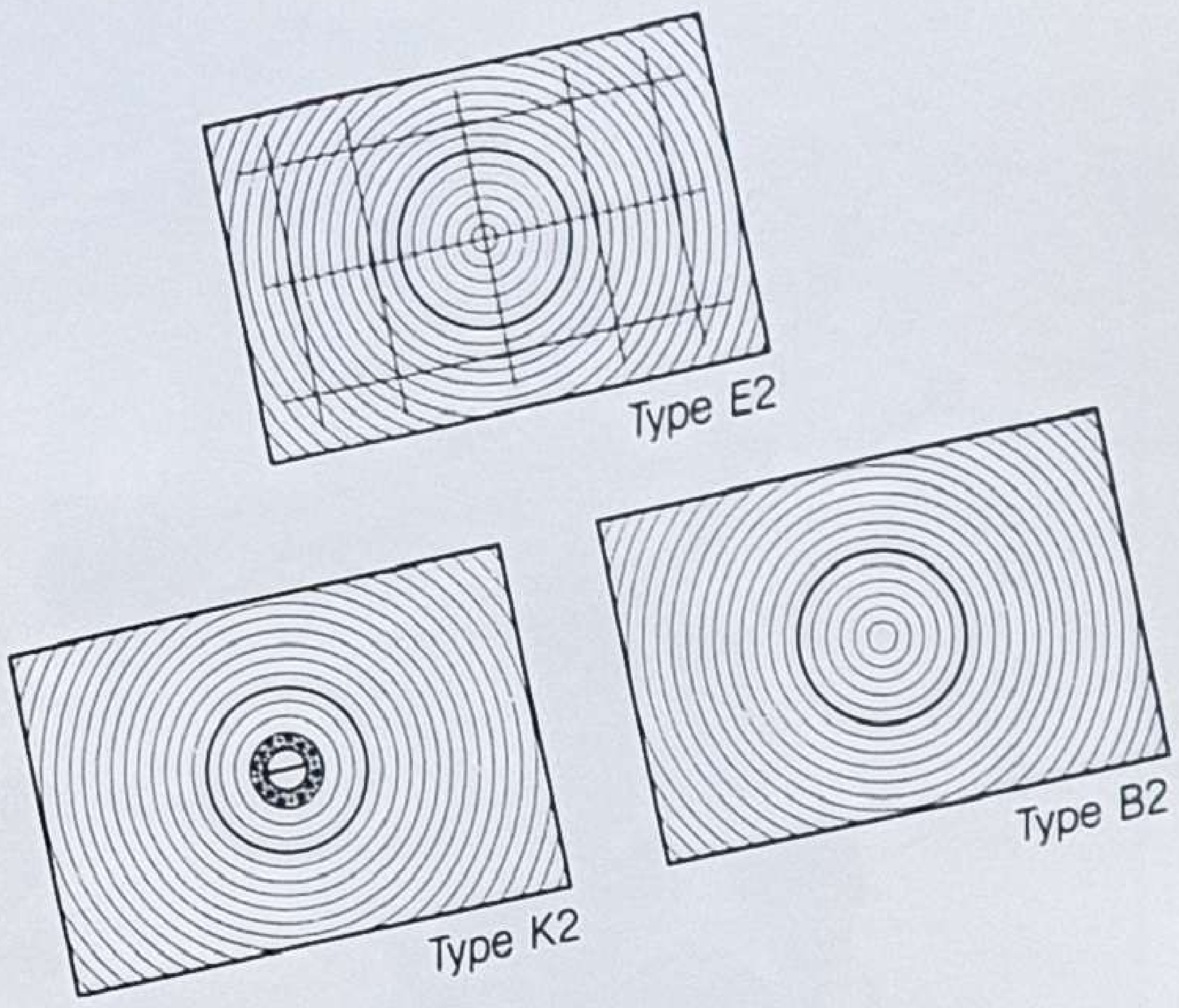
**Cyclic Code**

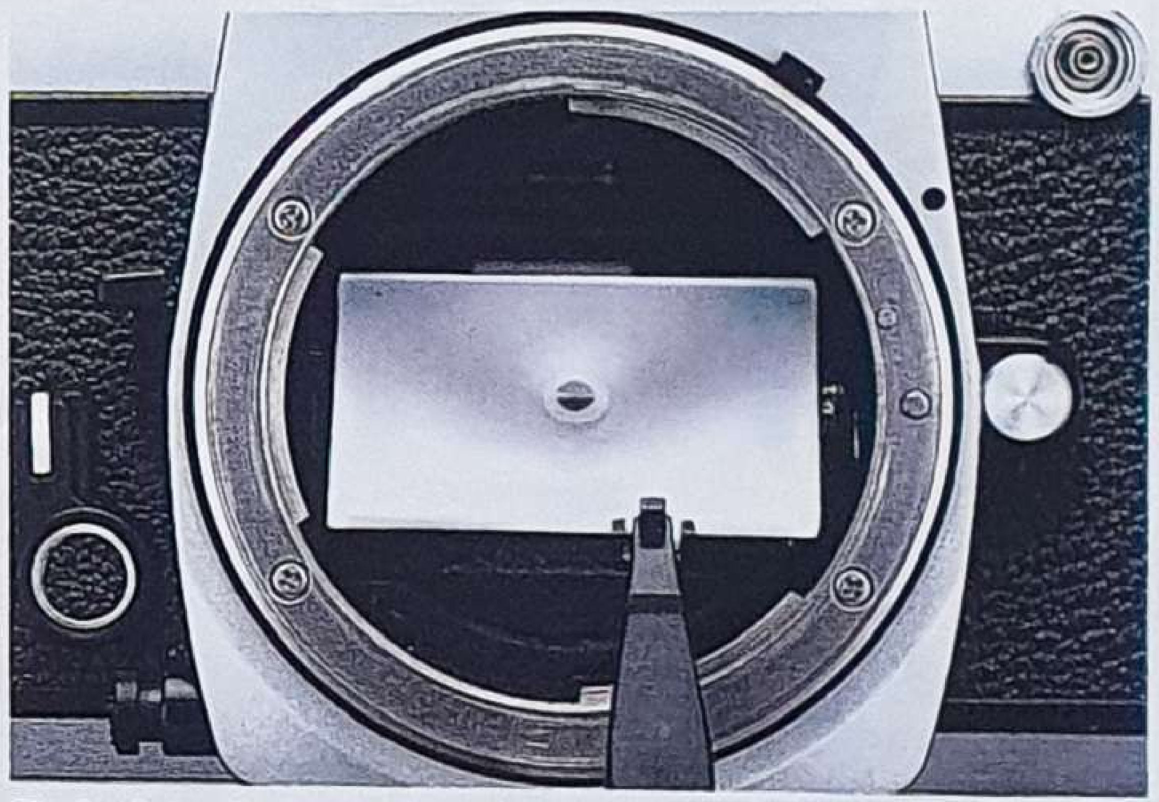
*THE TECHNOCAMERA uses the binary language of the computer in the form of a cyclic code to eliminate even the most minute reading errors in shutter speed, lens speed, film speed, number of stopped-down f-stops, etc.*



**Newly engineered mirror box**

*In the FA, smooth mirror movement is owed to a thoroughly redesigned mirror box. When the mirror goes down, a Nikon-developed plate linked to the mirror automatically rises to cushion against shock. With mirror bounce or shake just about non-existent, there's absolutely no light leakage to the film, even with the intrusion through the lens of a specially strong light source. Also, the mirror is big enough to just about eliminate vignetting even with an 800mm supertelephoto.*

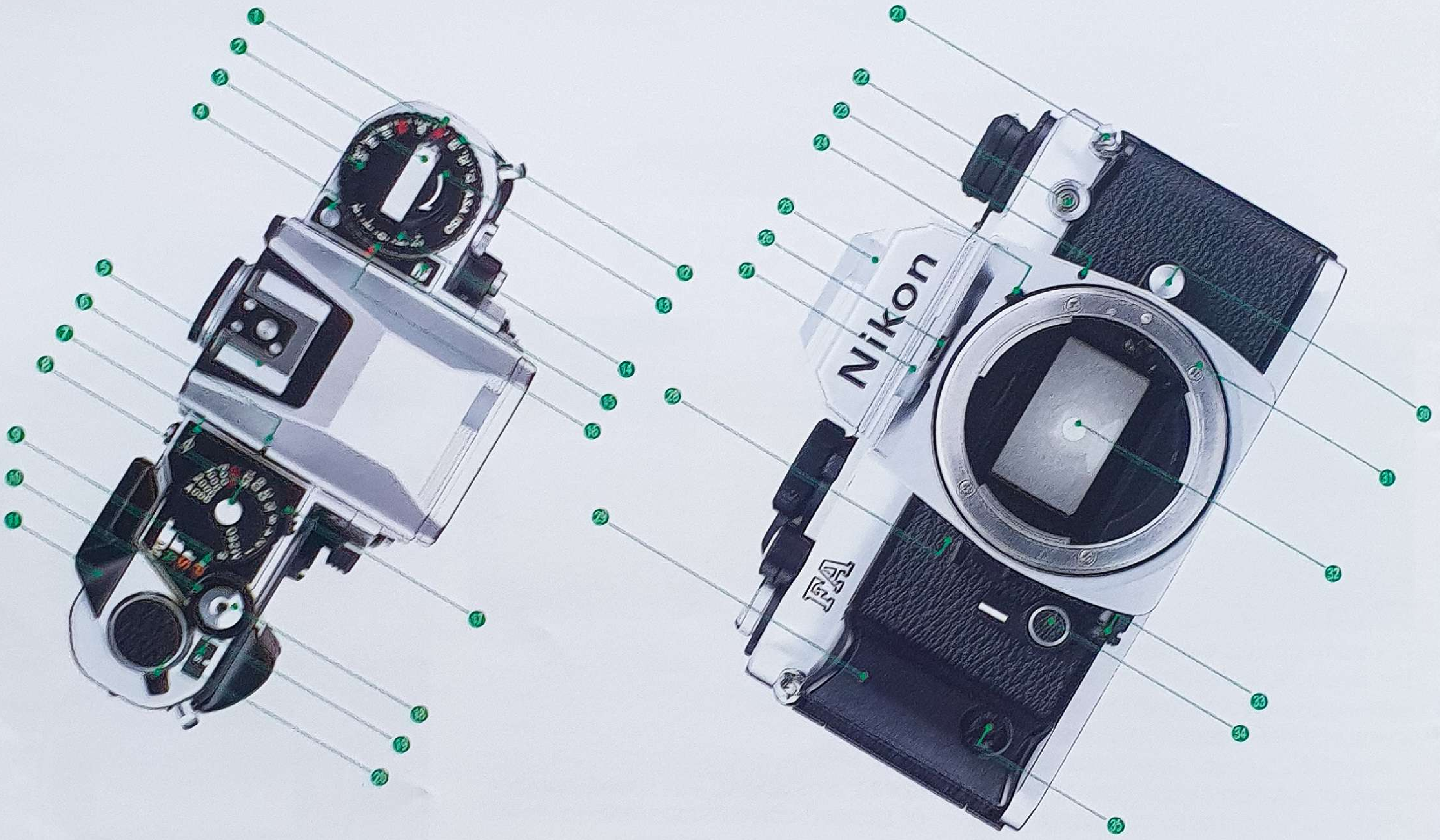




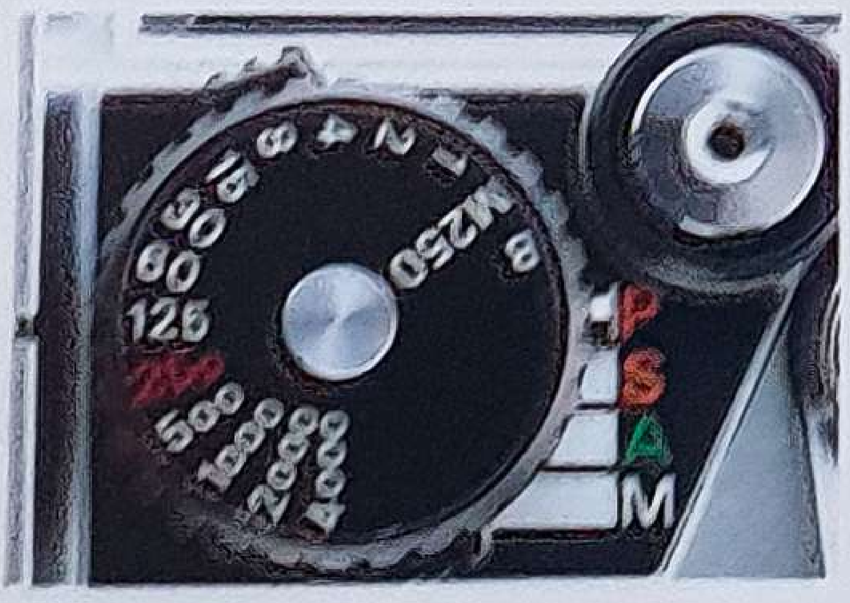
**Bright, interchangeable clear-matte focusing screens**

*Three screens—the K2, B2 and E2—are available. Their bright, clear, matte finish enhances the brightness of the FA's viewfinder, making pinpoint focusing possible even in the dimmest lighting conditions. The FA uses the K2 type as its standard screen. With its central split-image rangefinder spot, surrounded by a microprism ring and a matte outer field, the K2 works best for most picture-taking situations. The B2 offers an unobstructed view in the center—perfect for zooming in or when using long lenses. As for the E2, with its etched verticals and horizontals, it is especially recommended for architectural photography or as a general aid in composition.*

# TECHNOCONTROLS



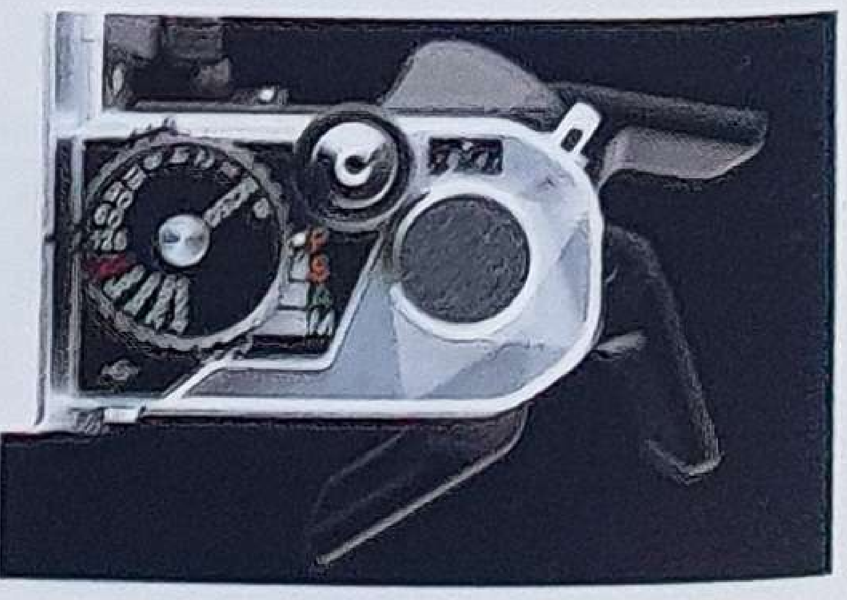
① ASA/ISO film speed setting index
② Film rewind crank
③ Camera back locking lever
④ Exposure compensation dial lock
⑤ Accessory shoe
⑥ Shutter speed setting index
⑦ Film plane index
⑧ Shutter speed dial
⑨ Shooting mode index
⑩ Shutter release fingerguard
⑪ Film advance lever
⑫ ASA/ISO film speed setting ring
⑬ Film rewind knob
⑭ Exposure compensation scale
⑮ Exposure compensation mark
⑯ Exposure compensation index
⑰ Shooting mode selector lever
⑱ Shutter release button
⑲ Frame counter
⑳ Multiple exposure lever
㉑ Neckstrap eyelet
㉒ Sync terminal
㉓ Lens mounting index
㉔ AI coupling lever
㉕ LCD illumination window
㉖ ADR window
㉗ Shutter speed display illumination window
㉘ Depth-of-field preview lever
㉙ Handgrip
㉚ Lens release button
㉛ Lens mounting flange



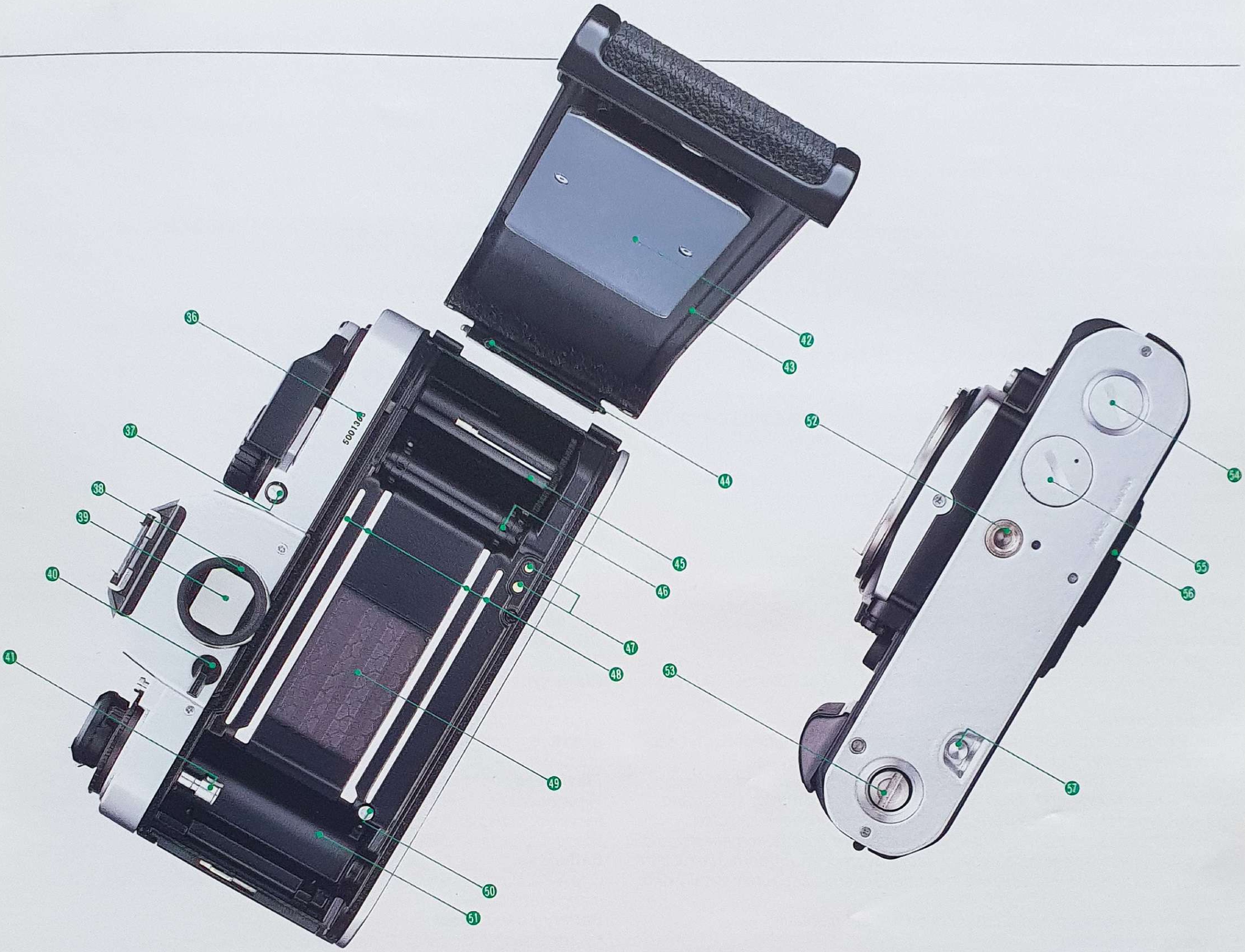
**Shooting mode selector**
This lever is conveniently knurled for easy mode changeover—slide it to P for Dual Program auto-exposure, S for Shutter-Priority auto-exposure, A for Aperture-Priority auto-exposure or M for Manual shooting. All settings are click-stopped for error-free operation.

**Centerweighted metering changeover switch**
Pushing this switch instantly changes the FA's metering system from Automatic Multi-Pattern Metering to centerweighted metering in the P, S or A mode; changeover is automatic in the M mode. Turning the switch outward, until a red indicator shows, locks the setting.

**Multiple exposure lever**
This allows you to shoot any number of subjects on exactly the same frame for impressionistic and other special effects. The lever is systematically positioned close to the shutter release button and the film winding lever so you can operate all three with one hand.



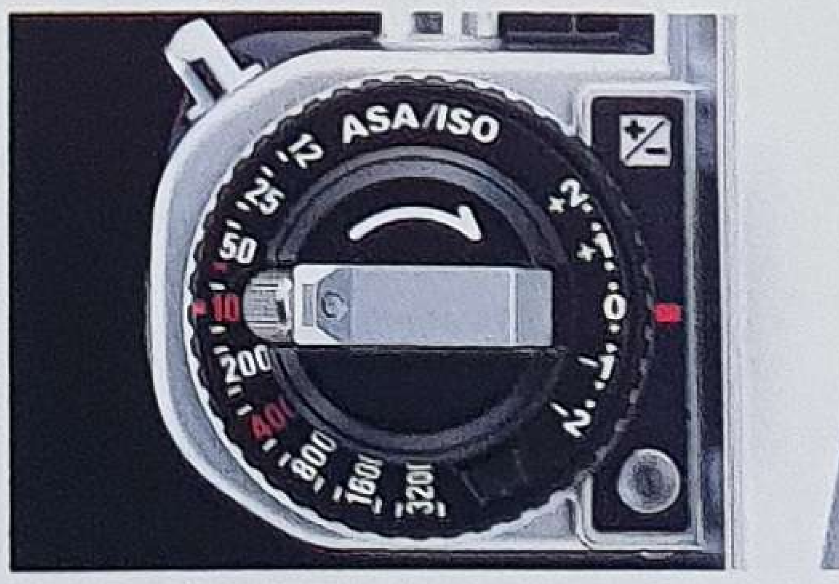
**Film advance lever**
This short-stroke (135°) lever also locks the shutter release button and turns the meter off when it's set flush with the camera body.



- ㉜ *Reflex mirror*
- ㉝ *Centerweighted metering changeover switch*
- ㉞ *Self-timer lever*
- ㉟ *Handgrip locking screw*
- ㊱ *Serial number*
- ㊲ *M250/B lock button*
- ㊳ *Rubber eyecup*
- ㊴ *Finder eyepiece*
- ㊵ *Eyepiece shutter lever*
- ㊶ *Film rewind fork*
- ㊷ *Film pressure plate*
- ㊸ *Interchangeable camera back*
- ㊹ *Camera back releasing pin*
- ㊺ *Film take-up spool*
- ㊻ *Film sprocket*
- ㊼ *Data back contacts*
- ㊽ *Film guide rails*
- ㊾ *Shutter curtains*
- ㊿ *Film guide pin*
- (51) *Film cartridge chamber*
- (52) *Tripod/motor drive coupling socket*
- (53) *Motor drive coupler*
- (54) *Motor drive coupling cover*
- (55) *Battery chamber cover*
- (56) *Memo holder*
- (57) *Film rewind button*

**Eyepiece shutter**
*A convenient feature for unmanned shooting, this device prevents stray light from entering the eyepiece and affecting the meter reading. The shutter blind is painted red so it's easy to tell when it's in use.*

**Self-timer**
*Useful for self-portraits or "join-the-group" pictures. To cancel operation after the self-timer lever has been set, simply move it back to its original position.*



**Exposure compensation dial**
*To compensate for a so-called "foolproof" or "correct" exposure, especially in unfavorable lighting conditions such as snowscapes, dark subjects against a white background, backlighting, etc., when exposure measurement is made by centerweighted metering in the auto-exposure mode, you can make use of the FA's exposure compensation dial. Exposure compensation from −2 to +2 EV in increments of 1/3 EV is available.*

**M250 backup mechanical shutter release**
*Even if the camera's batteries are exhausted, you can still use the FA by pressing the M250/B lock button and setting the shutter speed dial to* ***M250****. The shutter is mechanically released at 1/250 sec., although there is no LCD readout. Both the M250 and B settings are locked to prevent inadvertent usage.*

## SPECIFICATIONS

**Type of camera**
Electronically controlled 35 mm single-lens reflex

**Picture format**
24 mm × 36 mm (standard 35 mm film format)

**Lens mount**
Nikon bayonet mount

**Lenses**
More than 60 Nikkor and Nikon Series E lenses available

**Viewfinder**
Fixed eyelevel pentaprism type; 0.8X magnification with 50 mm lens set at infinity; 93 % frame coverage; eyepiece shutter provided

**Focusing screen**
Matte/Fresnel focusing screen with central split-image rangefinder spot and microprism collar (Nikon Type K2 screen); two other types of screens available optionally (Types B2 and E2)

**Exposure meter coupling**
Via automatic maximum aperture indexing (AI) system

**Exposure metering**
TTL full-aperture Automatic Multi-Pattern Metering for exposure and LCD readout computation in the Program, Shutter-Priority and Aperture-Priority modes, with shutter speed controlled by TTL light intensity feedback metering system; TTL full-aperture centerweighted metering on Manual or when metering changeover switch is pressed or locked; stopped-down metering operative by depressing the depth-of-field preview lever completely

**Exposure meter switch**
Meter turned on when shutter release button is depressed halfway; meter stays on for approx. 16 sec. after finger is lifted off button

**Light metering range**
LV1 to LV20 at ASA/ISO 100 with f/1.4 lens

**Exposure control range**
Automatic Multi-Pattern Metering—EV 1 to EV 16$^{1}/_{3}$ at ASA/ISO 100 with f/1.4 lens; centerweighted metering—EV 1 to EV 20 at ASA/ISO 100 with f/1.4 lens

**Exposure control**
Three automatic exposure modes: P (programmed), S (shutter-priority) and A (aperture-priority); M (manual) exposure mode also provided
P mode: Shutter speed and aperture both set automatically and steplessly; with AI-S type Nikkor and Nikon Series E lenses of 135 mm or longer and with AI-S type Nikon Teleconverters, higher shutter speed is selected
S mode: Shutter speed set manually while aperture is set automatically and steplessly; shutter speed also cybernetically overridden for correct exposure
A mode: Aperture set manually while shutter speed is set automatically and steplessly
M mode: Both aperture and shutter speed are set manually

**Exposure information**
By digital LCD readout inside viewfinder (see pp. 8-9)

**Exposure compensation**
±2 EV compensation (in one-third increments) possible via dial; red LED exposure compensation mark visible at the right-hand side, center, inside viewfinder when meter is on

**Film speed range**
ASA/ISO 12 to 4000

**Shutter**
Electromagnetically controlled vertical-travel, metal focal plane shutter with titanium curtains

**Shutter speeds**
Stepless speeds from 1/4000 to 1 sec. in P and A auto-exposure modes; 13 speeds from 1/4000 to 1 sec. on S and M; mechanically controlled, 1/250 sec. at M250 setting and long exposure at B setting available

**Film advance lever**
Wound in single stroke with 30° stand-off angle and 135° winding angle; doubles as shutter release button lock

**Automatic film advance**
Possible with optional Motor Drive MD-15 or MD-12

**Frame counter**
Additive type, self-resetting; until the frame counter reaches "1," shutter fires at 1/250 sec. unless shutter speed dial is set at B

**Film rewind**
Via folding crank and rewind button in baseplate

**Self-timer**
About 10-sec. delayed shutter release; cancellable after setting

**Depth-of-field preview lever**
Provided; with lever depressed, metering is centerweighted

**Reflex mirror**
Automatic instant-return type

**Multiple exposures**
Possible via lever

**Camera back**
Hinged; interchangeable with Data Back MF-16

**Handgrip**
Detachable; must be detached when attaching motor drive

**Accessory shoe**
Standard ISO-type hot-shoe contains flash sync contact, ready-light contact, TTL flash control contact and monitor contact; accepts Nikon SB-15 or SB-16B for TTL direct flash control

**Sync terminal**
Threaded type provided for off-camera or multiple flash photography

**Flash synchronization**
1/250 sec. or slower with electronic flash; with Nikon dedicated flash unit, flash sync automatically set to 1/250 sec. when camera is set at any auto-exposure mode or when shutter speed dial is set at 1/500 or higher in manual mode; at slower speed on manual, shutter fires at speed set

**Flash ready-light signals**
Viewfinder LED lights up when Nikon dedicated flash unit is completely recycled; blinks to warn of insufficient light output or improper shutter speed dial or film speed setting

**Batteries**
One 3V lithium battery, two 1.55V silver-oxide batteries or two 1.5V alkaline-manganese batteries

**Battery power check**
By confirming if digital LCD readout is ON after lightly pressing shutter release button

**Body finish**
Chrome or black

**Dimensions**
142.5 mm (W) × 92 mm (H) × 64.5 mm (D)

**Weight (body only)**
Approx. 625 g

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*Specifications and designs shown herein are subject to change without notice.*

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of Photographic Equipment
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Sarajevo '84

Nikon cameras have been flying in space on NASA's manned spacecraft program ever since the APOLLO program. It also includes SKYLAB and the joint venture APOLLO-SOYUZ.

Nikon

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